

MacWEEK

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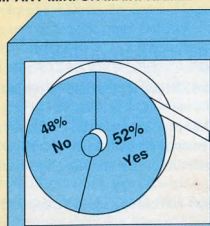
"Why shouldn't people be able to choose a computer that matches their environment or personality?"

Macs of many colors

David Siegel customizes computers to match any decor or taste
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ZOOM IN

IS YOUR MAC LINKED OR DO YOU PLAN TO LINK YOUR MAC TO THE COMPANY MINI OR MAINFRAME?



Source: June 1987 Creative Strategies/MacWEEK

Quick draw by General Computer

GCC fires first with cheap, fast Personal LaserPrinter

BY ABIGAIL CHRISTOPHER

MacWEEK Staff

CAMBRIDGE, Mass. — General Computer plans to announce a 300-dpi Personal LaserPrinter just four days before the Mac Expo to be held in Boston next month, say sources close to the company.

The machine is expected to carry a list price of less than \$2,000 but will lack PostScript compatibility.

Running Apple's QuickDraw printing language, the Personal LaserPrinter is "the first full-featured 300-dpi laser printer for the Macintosh affordable by a single user," according

to a source. It clocks speeds of six pages to 10 pages per minute and connects to the Mac through the SCSI port.

Weighing only 37.8 pounds and measuring only 16.1 inches by 16.5 inches, the Personal LaserPrinter includes three printing options: delayed, preview and draft.

Apple reportedly has its own non-PostScript laser printer under development, code-named Solo, which is expected to employ advanced QuickDraw routines and to cost about \$2,000.

To date, no QuickDraw printer has been

See GENERAL COMPUTER, Page 21

Comtrex products energize presentation market

BY JIRI WEISS

MacWEEK Staff

NEWPORT BEACH, Calif. — Apple's growing presence in the presentation graphics market will be given an important boost when Comtrex Ltd., a firm previously not well-known to users, introduces three innovative products next month.

Leading the entries is the Macnifier, a flat, translucent LCD that reproduces the Macintosh screen in real time. The device is designed to rest on an overhead projector, which enlarges

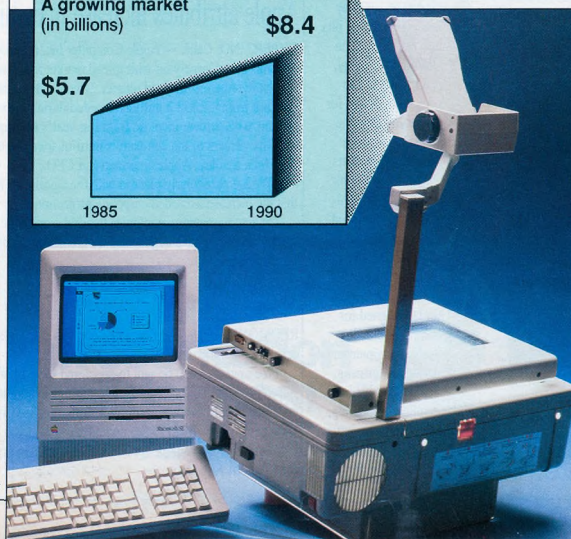
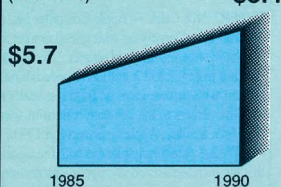
the screen image. Scheduled to be introduced at the Aug. 11 Mac Expo, Macnifier will retail in September for less than \$1,500.

Comtrex makes video projectors for the PC. But the company says it believes the competitive pricing of the Macnifier and the product's potential to work with a huge installed base of overhead projectors will cut deeply into sales of video projectors.

"We waited until the right product came along," says Steve Baker, the company's prod-

See COMTrex, Page 21

DESKTOP PRESENTATIONS:
 A growing market
 (in billions)



APPLE COMPUTER PRODUCT BLITZ

Peripherals

- ImageWriter LQ printer
- Faxmodem and scanner

Communications

- PC AppleShare
- MacWorkStation

System software

- HyperCard
- MultiFinder (Juggler)

Upgrades

- New versions of MacDraw, MacWrite, MacProject and MacTerminal

Apple heads for Boston totting big bag of products

BY MACWEEK STAFF

BOSTON — Apple Computer Inc. hopes to solidify its new-found success in the business community with the release of a strong line of peripherals, communications products and systems software at the Mac Expo in Boston Aug. 11-13.

MacWEEK has learned that Apple will introduce the following products:

- ImageWriter LQ, a 24-pin, letter-quality

See APPLE, Page 21

No software before it's time?

At last, dBASE Mac is ready

BY CARLOS BOARDMAN

Special to MacWEEK

TORRANCE, Calif. — The late Orson Welles could have pitched Ashton-Tate's much-delayed relational database, dBASE Mac, which is expected to finally hit retailers' shelves within weeks.

Picture the rotund actor nimbly fingering an Ashton-Tate disk, earnestly gazing into the camera and saying, "We will sell no software before it's time."

Billed by Ashton-Tate as the Mac version of its best-selling PC dBASE product line, dBASE Mac lets users link up to 36 database files and directly access database files that have been created using Ashton-Tate's dBASE III program, according to the company. A MacDraw-like graphics program and a programming language that can be used to create custom database applications also are featured in the Mac database.

Under development for more than two

See DBASE, Page 21

Canon Cat 'non-computer' easy to use

BY ELINOR CRAIG

MacWEEK Staff
MENLO PARK, Calif. — "An appliance should be something you approach, turn on and start to use," says Jef Raskin, the brain behind the Macintosh and father of a new "non-computer," the Canon Cat.

The Cat, introduced recently by Canon, is called a non-computer because it has all the brains of a computer but no computerese, says Raskin. You can learn to use the Cat in five minutes, he says.

At Information Appliance Inc., Raskin, chairman and CEO, has developed the next-generation appliance for information manipulation — a "work processor."

"It is not the next step after the Mac because that implies a similar direction. This is a whole new concept; it is the next thing in human interface," says Raskin, who is frequently credited as the creator of the Macintosh Interface.

The target market for the Cat is business. "Office applications are the purpose of this machine," says Raskin, although he projects third-party developers will soon begin programming for other markets.

"I still believe the Mac is the world's great-

est machine for certain applications," says Raskin, but he says the speed and ease of using the Cat make it what he originally wanted for the Mac. Slightly smaller than the Mac, the Cat's keyboard lacks a numeric key pad but has two additional function keys called "leap keys," which make instant changes in the position of the cursor. All the operating and application software is built into the machine.

The \$1,495 Cat has been described as a sophisticated word processor, but Raskin says it is much more than that. It can print with any parallel printer, link with other computers and auto answer/dial. It handles databases, calculations, communications, spreadsheets and word processing. The difference between the Cat and other computers is in how tasks are handled.

For example, calculations can be done in the text. There is no need to pull down a menu, choose the calculator and then transfer the sum. Numbers can be typed in the sentence. The computer does the calculations and erases the equation, leaving the result where it is wanted.

Each application is ready to use immediately, with no closing of files, programs or windows. There are no windows, no menus, no mouse, no function keys. There is only one key that handles all disk-drive functions. ■

PCPC will unveil large-screen Mac II monitor

BY RUSTY WESTON

MacWEEK Staff
TAMPA, Fla. — The latest high-resolution color graphics monitor for the Mac II is assembled in the United States, but the part users will view is a Sony, the industry standard.

Personal Computer Peripherals Corp. will introduce its 19-inch PCPC II at the Mac Expo Aug. 11 in Boston. It will be the second OEM 19-inch color monitor available for the Mac II. The PCPC II retails for \$4,995 with video card,

monitor, tilt and swivel stand, and cables.

The other color monitor is a surprise: It's not a Sony. It's SuperMac Technology's Spectrum — with a display made by Ikegami, a Japanese firm known for high-quality video cameras. The Mountain View, Calif., company will ship a Sony version of Spectrum in October, retail dealers say. The Ikegami edition of Spectrum with a video board sells for \$3,900 at ComputerWare in Palo Alto, Calif.

Displaying 256 colors from a palette of 16.8 million hues, the PCPC II provides resolution of 1,024 by 768 pixels with 8 bits per pixel. Based on CMOS technology, and including Zip pack video RAM for high reliability, the company says the monitor's few parts ensure long, trouble-free use. The monitor's non-interlaced display results in a flicker-free screen, the company says.

The PCPC monitor is designed for computer-aided design, computer modeling, advertising, desktop publishing, computer modeling, presentation graphics and unlimited color applications. ■



BY PAUL MORRELL

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LATE NEWS

CMS will announce compact SCSI hard disks

TUSTIN, Calif. — CMS enhancements Inc. will announce this week the MacStack series, a family of compact SCSI hard disks that can be stacked under a Macintosh.

Available immediately, the MacStack lists at \$795 for 20 Mbytes of storage, \$1,495 for the 40-Mbyte model and \$1,795 for 80 Mbytes. The disks range in speed from a 65-millisecond access time for the 20-Mbyte model to 28 milliseconds for the 80-Mbyte version.

Apple attributes increase in earnings to success of SE

CUPERTINO, Calif. — Apple Computer Inc. recently reported sharp increases in third-quarter earnings based largely on widespread market acceptance of its new Macintosh SE.

Net income for the third quarter, which ended June 26, was \$53.5 million, a 65-percent increase from the \$32.3 million recorded during the same period last year. Net sales were \$637.1 million, a 42 percent increase from last year's third-quarter sales of \$448.3 million.

Fifty percent of the company's third-quarter revenues were pegged to new Macintosh products, says John Sculley, Apple chairman and CEO.

"We are particularly pleased with the significant increase in earnings," Sculley says, adding that the increase exceeded corporate projections.

"Strong momentum continues to build worldwide for our Macintosh products. Shipments of the Macintosh II have begun, and we are encouraged by initial demand for this high-performance product," he says.

Word 3.01 available soon; many bugs fixed in upgrade

REDMOND, Wash. — Microsoft Corp. has completed Word 3.01 and is packaging the product, according to sources close to the company.

Free upgrades will be sent to registered users of Word 3.0 in the next few weeks. The new version reportedly fixes a large number of bugs in addition to ensuring compatibility with the Mac II.

Sources at Microsoft's customer support office expressed relief that the problem-plagued software package has finally been upgraded.

Word 3.01 is available for \$395. Registered users of Word 1.05 can upgrade to Version 3.01 for \$99 until Aug. 31.

Macintosh developers are unclear about Claris

BY RICK LEPAGE

MacWEEK Staff

CUPERTINO, Calif. — One week after Apple's spinoff company, Claris Corp., declared its "clear vision" for the software industry, other Macintosh developers remain confused about the company's intentions.

Some developers worry that Claris will take advantage of Apple's vast resources at the expense of the smaller developers, while others view the new company as a potential ally against software giant Microsoft Corp.

The latter group points out that while Microsoft is the largest supplier of software for the Macintosh, it still seems driven mainly by the IBM PC market. One developer, who asked not to be identified, says Apple has had problems with the Redmond, Wash.-based company in the past. For example, last year Microsoft reportedly forced Apple to stop development on Macintosh Basic, a language product that would have competed with a similar product from Microsoft.

"I have been assured that Claris is intended to provide a wedge between Apple and Microsoft — to reduce Microsoft's hold on Apple and the Macintosh software market," the developer says.

Tom Evslin of Solutions Inc., developer of Glue and Desktop Express, says he welcomes a new heavyweight contender for the Mac market that would not have split loyalties.

"It was painfully obvious at the Spring Developers Conference, which happened around the time of IBM's PS/2 announcements, that all the high-ranking people from Ashton-Tate and Microsoft were in Boca Raton (Fla., where the IBM machines were developed). Having a major software publisher who doesn't have to jump to IBM's tune is a very positive thing for the Mac," Evslin says.

To other developers, however, any powerful new competitor is bad news. "While it hasn't been stated, I'm sure that [Claris President] Bill Campbell's intentions are to dominate the Macintosh software market," says David Winer, president of Living Videotext, a division of Symantec Corp. of Berkeley, Calif.

"I wouldn't want it any other way, but the problem I have is Apple's lack of a clear position on how it is using the software business. Until the company is spun off, Claris is Apple," says Winer.

Another major software developer concurs, saying, "Apple is out to conquer the rest of the world, and they have an unfair advantage over third-party developers."

Charlie Jackson, president of Silicon Beach Software of San Diego, developer of SuperPaint, says he is not as concerned about competition, but predicts there will be an impact.

"I believe Claris will be a major software company in the marketplace. They already have graphics software, so they should continue this. That's fine. It's tougher on us, but competition is good for the marketplace. I just have to have a superior product," he says.

Think Technologies' vice president, Andrew Singer, agrees. "I don't think there is anything sinister about this. It would have

been sinister if Apple had announced it was forming an applications software division. That would have made me upset. But Apple doesn't want to lose the value it has in applications software."

Much of the furor surrounding Claris seems to arise directly from apparent indecision within Apple over what direction the software company should take and how the relationship with third-party vendors will be

affected. Winer talks about the lack of "consistent signals" from Apple over Claris. Evslin sees a similar situation.

"I have been amused that people inside Apple know as little about Claris as I do, which points to a degree of uncertainty inside Apple. That is obviously going to lead to conflicting opinions. But it is clear that this thing was put together fast, which might account for a lot of that," says Evslin.

Despite all the commotion, developers still seem optimistic that they will be able to compete with another large player in the Mac mar-

ket. "You cannot innately produce great software. Just because Apple has the money, it doesn't mean they will be able to do anything," says Rick Barron, president of Affinity Microsystems Ltd. of Boulder, Colo., publisher of Tempo.

Barron says, "It's a challenge that most good publishers will be able to meet. These are issues all developers and publishers are concerned about, but the world is made up of creative people. The challenge is in out-creating the person holding an advantage to the point where you are the advantaged party." ■

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AST takes on Apple laser printer

New TurboLaser/PS is better, cheaper, company says

BY RUSTY WESTON

MacWEEK Staff
IRVINE, Calif. — AST Research Inc. has released its first Macintosh-compatible laser printer that company officials claim costs less and outperforms Apple's similar model.

At \$3,995, AST's new TurboLaser/PS is the lowest-priced printer equipped with Adobe Systems' PostScript page-description language. The comparable Apple LaserWriter Plus lists at \$5,799, although it sells retail for about \$4,600.

Mac desktop publishers can use the eight-page-per-minute TurboLaser/PS through an AppleTalk port on the PostScript board.

"We feel the PostScript software will run faster on our [TurboLaser/PS] because we have the most recent release of Adobe PostScript software," says Renee D. Stevenson, AST's manager of special projects.

For \$1,995, TurboLaser users can upgrade to a 12.5-MHz PostScript controller board, which incorporates a Motorola 68000 microprocessor, Stevenson says. The software comes with 35 fonts at 300-dpi resolution.

The new printer will be shipped in December, and retailers can expect to take orders in August, she says.

"This unique desktop-publishing solution gives users greater flexibility than any other system," says Chuck Corrigh, director of AST's Vertical Systems Group. "The AST TurboLaser/PS is now compatible with all software applications that drive PostScript as well as plug-compatible with other PostScript devices."

The company says its new printer has a life expectancy of 600,000 pages. The LaserWriter Plus, powered by a different engine, has a life expectancy of 100,000 pages. ■

HP aims color printer at PC pros, Mac users

BY CLAIR WHITMER

MacWEEK Staff
PALO ALTO, Calif. — Hewlett-Packard will make a major pitch for a piece of the Macintosh peripherals market on Aug. 3.

That's the day the company will ship printing PaintJet, a color version of its ink-jet printer for the Macintosh II and IBM PC, and a Macintosh Interface Kit for the company's scanner.

Priced at \$1,395, the printer provides near letter-quality text and color graphics in seven colors at a resolution of up to 180 dpi. The text quality is reportedly superior to the company's QuietJet printer and operates at a speed of 167 cps or a full page of graphics in four minutes.

"We're aiming this product at personal computer professionals. The Mac user is also a major market for us, and we plan to market them equally [for the Macintosh and IBM PC]," says HP spokesman Gary Schneider.

Macintosh users will require separately sold printer-driver software, now available from HP and expected to be available from Cricket Software, according to Schneider. Cricket already supports the product with its Cricket Draw and Cricket Graph software.

Ann Arbor to ship FullWrite before resuming merger talks

NEWBURY PARK, Calif. — FullWrite, the long-anticipated word-processing and page-layout program, will ship under Ann Arbor Softworks' flag by the August Mac Expo in Boston. But after that, negotiations for a merger or acquisition will pick up where they have been stalled for the past several weeks, says Mark Marlow, executive vice president of marketing for Ann Arbor.

"We are under a tremendous time crunch to get the product out by August," says Phil Lipetz, company president. "These negotiations are more disruptive than helpful at this time. The technical staff needs to concentrate

The ScanJet has been available exclusively for the IBM PC and clones since March. Now it can be used with the Macintosh Plus or SE through the separately sold interface kit. An interface for the Mac II should be available within the year, according to HP spokesman Jim Hasel.

The kit includes an SCSI box, application software called Scanworks from Honolulu-based Softstyle and a power supply. The kit is priced at \$595; the ScanJet sells for \$1,495.

Analyst Arlene Karsh of CAP International says, "HP is interested in integrating desktop publishing with other kinds of business computing. [The Macintosh interface] is its acknowledgement that the Mac is an important part of that."

Hasel says: "The IBM users weren't really even aware of what a scanner was, but the Mac users were really more sophisticated. They knew what a scanner should do and what they wanted."

The scanner supports two file formats, TIFF and MacPaint, which can be integrated with many applications including Aldus Page-Maker, Letraset's Ready,Set,Go! and Adobe Illustrator. ■

on just the product. Nothing is going to happen until we have shipped FullWrite."

The Newbury Park, Calif., company's identity and control are issues that remain to be resolved, says Marlow. "We think it is important for Ann Arbor to keep the research and development intact, and the marketing strategy we use must be recognized as having experience and success behind it. We have a strong marketing ideal and we want to keep this intact. We hope to bring it over as an asset to a company that is not currently in the Mac market or to some company not positioned as well as they would like." ■



"It's a toy for an extravagant, impulsive, rotten, spoiled person. I've placed my order," says one Dynamac purchaser.

Long-awaited Dynamac ready to roll

BY CLAIR WHITMER

MacWEEK Staff
GOLDEN, Colo. — Since its debut on the February cover of a Macintosh magazine, the Dynamac portable Macintosh computer has been a sheltered celebrity.

Although the product created a stir in Mac circles, Dynamac Computer Products Inc. kept its product in seclusion until the company recently began shipments to the government.

Customers who have already placed orders should start receiving the portable, which has large quantities of back orders, in 45 to 60 days.

The delay was due primarily to the process of getting FCC approval, says Cherie Quaintance, Dynamac director of marketing. Approval for the Dynamac took twice as long as usual because the company made design changes midway through the procedure and had to start over.

Another factor that made the wait so long was the inadvertently premature announcement of the product. "[The developers] announced the product in a very early prototype version, perhaps earlier than they wanted. ... They just had one for themselves and they took it to Mac Expo just to see what kind of interest it would get," Quaintance says.

Users, whose interest had been sparked by interviews in several magazines, started requesting information. The company was taking deposits of up to \$1,500 months in advance of any proposed shipping date.

Quaintance says deposits were accepted, but the checks were not cashed. "We've been taking orders just to hold a place in the queue. Those checks were never cashed. It was really just good-faith money."

But despite doubts about the company's methods and concern about the wait, most users were too excited about the product to lose interest. "The idea of it being a Mac with the internal modem and storage is almost irre-

sistible. Translation of all that is: It's a toy for an extravagant, impulsive, rotten, spoiled person. I've placed my order," says one prospective purchaser.

The machine these people are so anxiously awaiting has been called a laptop, but the company is actually advertising it as a "transportable." Weighing in at 15 to 18 pounds, the machine is intended for professionals such as executives, government employees, journalists, traveling auditors, accountants or anyone who needs to combine a computing environment with traveling.

The Dynamac includes the entire logic board of a Macintosh Plus, an 800-Kbyte internal floppy, an E-Machine interface, 1 Mbyte of RAM, a universal power supply, an SCSI port and two serial ports. This standard computer is priced at \$4,995.

Optional features include up to an additional 3 Mbytes of RAM; a 20- or 40-Mbyte internal hard-disk drive; and a 300/1,200-baud asynchronous modem. With these included, the price can run between \$8,000 and \$9,000.

One reason for the high price is the expensive electroluminescent screen, chosen despite its cost because the company felt it provided the clearest display, says Quaintance.

Dynamac's imminent shipping raises speculation about the nature of Apple Computer's rumored laptop, code-named Malibu. Apple has a value-added reseller agreement with Dynamac, selling the company the entire logic board, keyboard, mouse and internal floppy drive. It is questionable whether Apple would release a product in direct competition with Dynamac, according to sources.

Apple did not return phone calls by press time.

"[Apple] provides rather generic machines. They leave it to their VARs to address the vertical market," says Quaintance. "Apple has been very helpful to us in launching our product." ■

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Interactive writes Apple Telex package, updates Intermail

BY RICHARD HALSTEAD

Special to MacWEEK

WABAN, Mass. — Interactive Network Technologies Inc. has recently completed a project for Apple Computer Inc.'s subsidiary in the Great Britain and is preparing an updated version of its desktop communications system, Intermail 1.0, for release in August or September.

"We were hired to write the package for [Apple]," says Steve Ullman, Interactive's president, about the telex software Apple commissioned. Ullman would not discuss the details of the financial arrangement. The Apple Telex package will permit Apple users in Great Britain to send and receive telex messages directly from their Macintoshes.

Apple owns exclusive rights to market the software in Great Britain, where the telex still is widely used despite its lack of speed. Interactive will add the telex function to its Intermail product for sale in the United States, but Ullman says he does not anticipate it will boost sales significantly because of the sparse use of this communications mode in this country.

However, a new version of Intermail —

Intermail 1.5 — holds more promise. The current version of Intermail makes it possible for network users, local or remote, to exchange electronic mail and data files of up to 32,000 characters.

To use Intermail, any combination of Macintosh 512K, 512KE, XL, or Macintosh Plus machines connected by an AppleTalk or AppleTalk-compatible network is required. Intermail's server software also facilitates links with larger X.400 systems, such as minicomputers and mainframes, by acting as an AppleTalk gateway.

Users of Intermail 1.0 had to send their messages manually. If a link between systems did not exist at the moment the sender was transmitting, delivery was impossible. Because such connections are typically established and severed frequently during the course of a normal workday, network users wasted a lot of time delivering their messages, Ullman says.

Intermail 1.5 is being designed to store and forward electronic mail automatically, Ullman says. If a link does not exist when the message is posted, the system will hold it until a link is established.

With Intermail 1.5, the network file server functions much like a small-town post office, Ullman says.

"We fashioned 1.5 after the postal system," he says.

Other features that will either be included on Intermail 2.0, which is being planned for release in January 1988, or available soon as add-ons include:

- An auto-dial option, which, with the assistance of a modem plugged into the network, will permit the sender to designate the exact time of message deliveries;
- Synchronous communication with other communications products such as MCI Mail, AppleLink, Dow Jones and ARPANET;
- Transfer of visual images from application software through the use of Glue from Solutions Inc. of Montpelier, Vt. (Interactive has purchased rights to Glue, Ullman says.)

"Our goal is to enable Mac users to use electronic mail without concerning themselves with any of the rigamarole," Ullman says.

Interactive Network Technologies Inc. is located at 20 Amy Circle, Waban, Mass.

02168; (617) 965-5239. ■

Statistical analysis software released by Systat

EVANSTON, Ill. — Systat Inc. is shipping its statistical analysis software with enhanced graphics.

Version 3.1 of Systat, a statistical package for the Macintosh and for the IBM PC, includes a graphics module that allows users to plot 3-D graphs, to scatter-plot matrices and to fit lines to data. The graphs can be printed on a LaserWriter at a resolution of 300 dpi.

The program's interface has been changed to take advantage of the Macintosh graphic interface, he says. Systat has separate windows for entering commands, viewing output and viewing graphs. The price is \$595.

Systat Inc. is located at 1800 Sherman Ave., Evanston, Ill. 60201; (312) 864-5670. ■

20-Mbyte external drive for SE, Plus from Franklin

WESTLAKE VILLAGE, Calif. — Franklin Telecommunications has started shipping a 20-Mbyte external drive for the Mac SE and Plus. The \$820 MacTwenty uses a Seagate ST225N drive with an access time of 65 milliseconds. The drive comes in a 2.5-inch high box that sits underneath the Mac and plugs into the SCSI port.

Four switches on the drive's front panel control four power outlets for more devices. The unit is protected against power surges.

MacTwenty is Franklin Telecommunications' first product in the Macintosh market. The drive is sold exclusively through resellers and computer dealers, the company says.

Franklin Telecommunications Corp. is located at 733 Lakefield Road, Westlake Village, Calif. 91361; (818) 706-1186. ■

Mesa's package emulates Tektronix terminals

BY JIRI WEISS

MacWEEK Staff

LOS ALAMOS, N.M. — Macintosh users can edit mainframe commands or electronic-mail messages and preview mainframe graphics with VT100 and Tektronix terminal-emulation software from Mesa Graphics.

The \$195 TextTerm+Graphics emulates Tektronix 4105, 4014, 4012, 4010, and 4006 graphics terminals and supports a data-transfer rate of 9,600 baud. The package can be used to preview mainframe graphics and output them to PICT and MacPaint files or to a LaserWriter printer. Output file formats are compatible with MacPaint, MacDraw, Aldus PageMaker, MacWrite and Microsoft Word, according to the company.

After downloading graphics, users can examine a portion of the drawing in detail. "You can draw a rectangle around the portion you want to see and zoom in," a company spokesman says.

TextTerm+Graphics includes a text editor for correcting mainframe commands and editing E-mail messages.

"You no longer need to switch between a word processor and a terminal program to read and compose your electronic mail," says Mesa Graphics' spokesman.

The text editor also can be used to insert tabs in numerical data to create tables.

The terminal-emulation package can be used with large screens and with plotters from Apple, Hewlett-Packard and Houston Instruments with output up to 11 inches by 17 inches in size. TextTerm+Graphics supports color on the Macintosh II.

Through the end of October, users of Mesa's Tekalike communications program can purchase TextTerm+Graphics for \$25 as an upgrade.

P.O. Box 600, Los Alamos, N.M. 87544; (505) 672-1998. ■

Thomson says UltraScan color monitor works on Mac II

CULVER CITY, Calif. — Another company has announced that its color monitor will work with the Macintosh II.

Thomson Information Systems Corp.'s \$895 14-inch UltraScan monitor has a maximum resolution of 800 by 560 pixels. Street price runs close to \$600, the company says.

UltraScan was designed to work with IBM PCs and the PS/2 line and has been available for about six months, says Edward Frank, the monitor's product manager.

"We built with a wider scanning frequency than was required for an IBM," Frank says. "Now we have tested it on the Mac II and we

have made a cable available."

To turn UltraScan into a Mac II monitor, the user has only to flip a switch on the back to change the setting to analog, says Frank. A switch on the back can be used to blow up the image on the screen about 20 percent.

The monitor includes an RCA jack for use with a videocassette recorder and a tilt/swivel base. Controls are mounted on the front.

Thomson is owned by one of the largest European electronics firms, Thomson S.A.

Thomson Information Systems Corp. is located at 5731 W. Slauson Ave., Culver City, Calif. 90230; (213) 568-1002. ■

Sun releases new workstation, cuts prices

BY ABIGAIL CHRISTOPHER

MacWEEK Staff

NEW YORK — Adding more sizzle to an already hot market, Sun Microsystems Inc. announced a 10-Mips RISC-based workstation and price drops of 7 percent to 10 percent on its existing.

The company also announced it will license its RISC architecture on the open market. Wall Street reacted to the announcements with a broad sell-off of Sun stock that resulted in a price drop of \$5.25 per share.

The new Sun 4/200 series, priced from \$39,900 to \$85,500, provides stiff competition to DEC's VAX 8800 12-Mips (millions of instructions per second) systems that can cost as much as \$600,000, depending on the configuration. Server and multi-user configurations of the 4/200 series processors are also available.

The introduction of a RISC-based Sun workstation had been anticipated by Hewlett-Packard and Silicon Graphics, vendors already marketing RISC-based systems, as the next-generation hardware succeeding the Motorola 68020 processor.

However, the announcement that Sun's RISC architecture, SPARC, already has been licensed to companies such as Cypress Semiconductor Corp. of San Jose, Calif., and Bipolar Integrated Technology of Portland, Ore., was unexpected. Sun also licenses its NFS networking protocols and NeWS graphic interface.

Sun President Scott McNealy says, "We intend to accelerate the rate of innovation by licensing SPARC."

The new RISC architecture, which was developed jointly with Fujitsu, is compatible with Sun's Series 2 and 3 workstations.

A 10-Mips SPARC processor is now available for licensing, and several additional high-speed SPARC chips are already in development. The new Sun 4 workstations have been aimed at applications where high processing speeds are needed, including seismic analysis for oil exploration and biomedical applications.

Some industry analysts attribute the licensing of the RISC architecture to last week's drop in Sun stock, while others say they believe the licensing indicates Sun's ambition.

Bob Herwick, senior analyst at Hambrecht and Quist, says, "Some people are trying to argue that licensing the RISC chip will hurt Sun, but I think that is ridiculous."

"Why on earth would a competing workstation vendor buy technology they'd be second in line for?" he says, referring to the next generation of this RISC architecture."

Other analysts say Sun is encouraging the best semiconductor companies to exploit its RISC technology. Cypress, for example, will offer a 20-Mips system based on the Sun chip by next year.

According to Joanne Kahn, manager of new business development at Sun, the price drop of Sun stock may be related to the number of product introductions and development efforts.

Salomon Brothers of New York took Sun off the recommended stock list, projecting the company's profits would be lower during the next year.

One reason for the lower profits is that the company spends an unusually high share of its revenue — 13 percent — on research and development.

"Sun's operating margin is 10 percent to 15 percent now, while it had been in the 12.5-percent to 14.5-percent range earlier in the year," Herwick says.

Sun also faces challenges from new competitors on the low-end, such as Apple, IBM and Microsoft.

"Sun is fuzzy on the low end now, and that's why we have not seen introductions in that area," Herwick says.

"There will be an 80386-based system from Sun, a low-end graphically oriented UNIX and DOS platform that will have to be priced under \$5,000. But they haven't gone heavily into manufacturing it yet," he says.

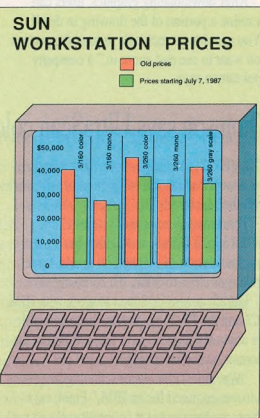
Kahn says, "We will have products on the low and high end based on the Motorola processor in the next year."

Herwick, however, says, "By implementing its own architecture on the high end, Sun has gained control over technology rather than being beholden to Motorola. Sun is providing proprietary leadership with an open architecture strategy."

With the introduction of the Sun 4 series, the company made across the board price cuts on its 68020-based 3 series system.

The 3/160 color workstation dropped from \$39,900 to \$27,900; the monochrome 3/160 was reduced from \$26,900 to \$24,900; the price of the 3/260 color system was cut from \$44,900 to \$36,900; the monochrome 3/260 was discounted from \$33,900 to \$28,900; and the gray scale 3/260 was reduced from \$40,900 to \$33,900.

"The volume sales of these workstations justifies the price cuts," Kahn says. ■



SNAPSHOTS

Abvent ships new color version of SpaceEdit 2.0

SANTA MONICA, Calif. — Mac II users can now turn their computers into stand-alone CAD workstations, according to Abvent of Beverly Hills, Calif.

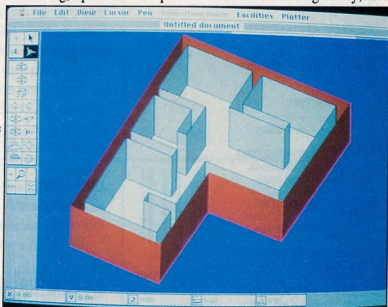
The company has started shipping its new color version of SpaceEdit 2.0, a fully integrated 2- and 3-D CAD software program.

The program also is compatible with the Mac 512K, Plus and SE and is priced at \$795. A black-and-white version sells for \$625. Aimed at engineers and architects, the program allows an image to be drawn in one dimension; the computer redraws it in two or three dimensions in a wire-frame, solid or shaded format. The image can then be viewed from any perspective.

The program supports the LaserWriter, ImageWriter or color pen plotters as well as large-screen monitors. For full-scale modeling, SpaceEdit also provides unlimited zooming ability, multilayered drawing, 3-D animation, windowing, hidden-line removal and other tools for drawing on the X, Y and Z axes.

Although several of these features were available in the previous version of the program, Christopher Laval, Abvent vice president, says Version 2.0 performs 30 percent to 40 percent faster.

Abvent is located at 9903 Santa Monica Blvd., Suite 268, Beverly Hills, Calif. 90212; (213) 659-5157.



Can you afford it? This program will tell you

ANN ARBOR, Mich. — So, you want a yacht but aren't sure how to finance it. Wishlist, a household finance program announced recently by International Consumer Technologies Corp. (ITC) may be able to help you plan the purchase.

Based on information about the user's financial situation, the program recommends a plan for financing a purchase and shows the effect it will have on household finances. But, according to Jack Edelstein, ITC's marketing manager, the program could say you can afford the yacht only if you don't eat for two years. ITC is still negotiating with publishing companies, but Edelstein says the program will ship within six months and be priced at \$99.

International Consumer Technologies is located at 3135 South State St., Ann Arbor, Mich. 48108; (313) 668-1881.

Brainpower will release math program with 3-D plotting

CALABASAS, Calif. — A new mathematics package for the Macintosh that includes three-dimensional plotting of functions will be shipped by Brainpower Inc. in mid-September.

MathView Professional is designed to be used by scientists, engineers, teachers and students to solve math problems in their everyday work, according to Sherwin Steffin, Brainpower's president and founder. The program will cost \$249.95. Demonstration disks will be available for \$10.

The new program evolved from an earlier program called MacMath Pack, developed by Dr. David Russell. Brainpower signed Russell and his program last November. Brainpower publishes programs for the scientific, engineering and academic communities.

With MathView, users can import data and math functions from the Clipboard or Scrapbook, or can enter them directly through MathView's data and function windows. The new program allows users to plot up to 10 functions simultaneously in either Cartesian or polar coordinates. MathView can also be used for matrix operations, differential equations and integration.

Brainpower Inc. is located at 24009 Ventura Blvd., Suite 250, Calabasas, Calif. 91302; (818) 884-6911.

Stand-alone buffer from Practical Peripherals

WESTLAKE VILLAGE, Calif. — Macintosh users will soon be able to store up to 1 Mbyte of memory in a stand-alone printer buffer from Practical Peripherals.

The Microbuffer In-Line will start shipping in mid-July or early August, according to Practical Peripherals. The buffer comes with 512 Kbytes of storage capacity and the option to install one or two 256-Kbyte memory chips. The buffer is priced at \$349 and the memory chips at \$99 each.

The buffer features a control panel capable of clearing the memory, putting operations on hold and reproducing a document up to 255 times without computer intervention. The Microbuffer can also be used as a buffer for a modem or plotter.

Practical Peripherals is located at 31245 La Brea Drive, Westlake Village, Calif. 91362; (818) 884-3092.

Macintosh headed for stardom

Macs go to work designing NASA's space station

BY JERRY DANIELS
and MARY JANE MARA

Special to MacWEEK

HOUSTON — The Macintosh seems to be NASA's biggest secret — so well kept, in fact, that Apple itself doesn't have any idea how many Macs NASA actually has.

Since the National Aeronautics and Space Administration functions as a matrix of horizontally and vertically integrated centers, directorates, divisions, branches and sections, most people at NASA have no idea just how many Macintoshes NASA is using. And with an elaborate web of NASA suppliers and contractors, like Lockheed and RCA, doing the buying, it's no wonder that Apple remains officially unaware of the Mac's rapid spread at two of the major divisions at NASA's Johnson Space Center, south of Houston.

How many Macs are there in the Man-Systems Division at the space center? Only the Purchase Order Department knows for sure. Officials in charge report that there are twice as many Macs as IBM PCs in use. In fact, Macs make up more than one third of all PCs at Man Systems: 104 out of 294.

Houston-based Apple representatives confirm that while they strive to provide ongoing support for the Macs at the space center, the parent company has not been a significant presence at the installation. Apple is planning its first on-site product demonstration at the space center later this month.

If you're a dyed-in-the-wool baby boomer, chances are you can remember sitting in a 1960s high-school current events class watching news clips of the guys at NASA. Close your eyes and the images of those days stream past: blond crewcuts; acres of awesome instrumentation; wow, we're going to beat the Russians to the moon! 1969 was the year it all happened. It seemed like magic.

Now it's 1987 and NASA is taking its lumps: launch problems ... the Challenger space shuttle tragedy ... delays ... an information-float (vital data floating in peoples' heads, not yet written down or saved to silicon) the size of the Hindenberg.

The eager young crewcuts of the '60s are sporting a few gray hairs, and a storehouse of first-hand aerospace experience now lies trapped beneath those speckled bristles. NASA, it appears, is still 90-percent information and 10-percent artifacts. How will the vets impart their knowledge to eager young up-and-comers raised on fast food, television and David Bowie?

How about a 3.5-inch floppy disk and a Macintosh computer?

Jay Cory, a senior habitation engineer with Johnson Engineering Corp., took MacWEEK on a tour of NASA's Johnson Space Center that began in building 15, the Crew Station Integration Section of the Crew Station Branch of the Man-Systems Division of the Space and Life Sciences Directorate. They build space stations.

According to Cory and co-worker Gary Kitmacher, designing and calculating the dimensions of the station and its parts is much faster on the Mac than previous systems (hand-drafting and/or McDonnell-Douglas McAuto CAD/CAE stations), although final designs are still done on McAuto.

Cory is not with NASA. He is a contractor hired by NASA to supply needed expertise. NASA has 3,252 federal employees and 4,013 aerospace contractors on site at the Johnson Space Center, with an additional 5,440 contractors working off site in the Houston area.

Because of the extraordinary number of civilian employees and contractors at NASA, it is difficult for outsiders to figure out who buys the Macs. Cory's own small office at the space center boasts four Mac Pluses, a LaserWriter Plus, an AST 4000 hard drive/tape backup, one of almost every hard drive made since the Apple HD20, and a Microtek scanner. His division bought its Macs and peripherals through Lockheed, which supplies computer services to Johnson Engineering. Other divisions have other contractors who do their purchasing. With such convoluted pathways of procurement, it isn't hard to understand why Apple doesn't seem to know that NASA is a Mac office of the first magnitude.

Crew Station Integration (CSI), the division that Cory works with, is responsible for "the man in the loop." Anything a crew member of the space station touches, CSI has to know about. "If the man gets himself painted into a corner up there," says Cory, "we've got to get him out."

It is a job that requires ingenuity, guts and lots of data in the form of text, databases and MacDraft documents. CSI stores it all on a myriad of hard drives, with tape backups, plus two sets of floppy-disk backups, in an effort to preserve and protect their hard-earned man-years of work. CSI then transfers all its data to overhead transparencies called view graphs, the common medium of information within all the NASA centers.

The path to CSI's space station mock-up leads past more Macs. Many are running as VAX terminals. Others are data-entry stations. Still others are working as stand-alone word processors.

The mock-up itself is spellbinding. Furthermore, Cory and Kitmacher clearly know each and every artifact in every square inch of the tubular sections as well as they know their own automobiles.

No means feat. The digital specifications and standards for the space station design occupy no fewer than 10 Mbytes of an Rbase 5000 database, currently being ported over to CSI's Macintoshes.

Inside the space station mock-up, a monitor shows a beautiful animated sequence on the McAuto workstation of the NASA space station being assembled over a two-year period in the weightlessness of space. It is easy to visualize the animation evolving from paper nap-



Gary Kitmacher, left, and Jay Cory say designing the space station is easier using Macintoshes.

kin sketches to the 3-D images on the McAuto after being drawn on the Mac. The result is like watching time-lapse photography of a flower blooming.

After showing the mock-up, Kitmacher voices his concern over what he and many view as NASA's biggest problem: the "changing of the guard" at the center of the NASA matrix. Valuable knowledge is in danger of being lost forever as the bright-eyed engineers of the '60s become the grand old retirees of the '80s. To illustrate the nature of this impending crisis, Kitmacher likes to tell "The Parable of the Cardboard Cover."

"When the space shuttle onboard docs were being designed, someone suggested that the bulky cardboard cover be taken 'out of the loop.' Luckily an old-timer was there to remind the group of an incident aboard the Apollo. During the Apollo mission, combustion occurred in the oxygen tanks (because of an over-heated recirculating fan). Acting quickly, the astronauts used the cardboard cover as part of a makeshift device to rid the air of excess carbon dioxide.

"Remembering this event, the powers that be left the cardboard cover on the manual. This same cover was used on the shuttle as part of a makeshift fly swatter the astronauts fashioned so they could flick a switch on a revolving communications satellite."

Kitmacher feels strongly that the Mac and user-friendly technology like it represents the most effective way to record and pass along this kind of hands-on experience to new generations of space technicians at NASA.

According to Geraldine Farris, Computer Lab and VAX manager, there was no struggle at all to get Macs in the front door of NASA's divisional computer lab.

"The Space and Life Sciences director in 1984 was ex-astronaut Joe Kerwin. He bought

a Mac after he saw Apple's ad [introducing the Mac] during the 1984 Super Bowl. He favored the Mac over IBM and asked me to evaluate both."

Farris concluded that the Mac was easier to use, more cost-effective and much more popular among managers.

"The Mac is the PC of choice here in this division. We've always got a dozen on order," Farris says. To date, more than 75 Macs have found a permanent home in building 15.

Farris' building is not alone at NASA. The Space and Life Sciences Projects Division also has a very impressive Mac AppleTalk network. Bob White, office automation coordinator for the division, says: "We've got 48 Macs here in this building. Twelve more are at our subcontractor's site, RCA Government Services. We have three LaserWriters (one per zone), along with six ImageWriter IIs with AppleTalk and another six plain ImageWriter IIs. Ten of our Macs are SEs."

The AppleTalk network is divided into three "zones" linked by Hayes Bridges. One zone has a FastPath gateway that lets the Macs talk to NASA's VAX via Ethernet hardware and Alisa Systems's AlisaTalk software. AlisaTalk also operates as a spooler for Laser Writers in all three zones.

Asked what the Mac's presence has affected most at NASA, White quickly responded, "Attitudes. There's the usual increase in productivity, but more than that, people seem to be more enthusiastic about their work."

After spending a day at NASA, it seems natural to turn that question inside-out. What effect will NASA have on the Mac? As with all technology that passes through NASA's mission-oriented hands, one wonders whether the Mac will come out on the other side with vastly improved capabilities for civilians to use. ■

How Macintoshes talk to mainframes

DEC's terminals are easier to emulate than IBM's

BY LARRY STEVENS

Special to MacWEEK

Personal computers are self-contained units. Screen, keyboard, memory banks and disk drives are connected in one neat package.

Minicomputers and mainframes, on the other hand, usually involve a central computer plus a number of remote workstations or terminals designed to work with it. Most terminals contain a screen, a keyboard, communications software and communications hardware such as a modem and/or cable to enable users to transmit and receive files.

But as personal computers have become increasingly common on managers' desks, the clutter and expense of having both a terminal and a PC have led many to look for some way to make their computer work both as a stand-alone machine and as a terminal.

The solution is the terminal emulator: software or software plus hardware that allows a personal computer to act as if it were a terminal in communication with a "host" mini or mainframe computer. The physical connection may be via direct wire to the host or through telephone lines via a modem. At present, there are only a few terminal emulators for the Macintosh, but there are enough to suit most needs.

Managers choose Macs as terminals for the same reasons they choose them for local computing: better graphics, ease-of-use, large memory potential and relatively low cost.

Philip Kutzenko, for example, group leader of information systems at American Cyanamid of Stamford, Conn., uses two molecular database systems called MACCS and REACCS on a DEC VAX minicomputer.

"These packages are very graphic in nature," he says, "and whenever you're talking graphics, the Macintosh excels."

A big advantage of using the Macintosh for MACCS and REACCS software, Kutzenko says, is the mouse pointer, a feature lacking on most terminals. He also says the only dedicated terminal that could handle the kind of graphics he needs is a Tektronics 4105, which costs twice as much as a Macintosh Plus.

Every mainframe or minicomputer has a number of specific terminals built for it. Function keys on the terminal will precisely match host functions; special characters will be exactly and easily reproduced on the terminal; and configuration and installation will be quick and straightforward. The most common terminals for DEC computers are the VT-100, VT-220, VT-240/241, Tektronics 401X and 4105. IBM systems use 327x and 5251 terminals.

On the other hand, terminal emulators vary widely in how closely they actually emulate a terminal. For example, the American National Standards Institute (ANSI) has specified a set of functions a product must implement to be called a DEC VT-100 terminal emulator. But the VT-100 offers at least seven additional functions, such as double height as well as reversed and blinking characters. In many cases, those extra characters may not be needed,

but some DEC software requires them.

"The best way to choose a terminal emulator is to first decide upon the software you want to use, then find the emulator that will run it," says Kutzenko. "You may discover that your choices are narrower than you think."

He also says that when he was shopping around, VersaTerm-Pro from Peripherals, Computers & Supplies Inc. of Mount Penn, Pa., was the only package that would provide the Tektronics 4105 terminal emulation he needed for his software. Since that time, only one additional package, Tekalike from Mesa Graphics of Los Alamos, N.M., has been introduced.

Frank Capella, vice president of training services for a New England bank, also found that once he knew what he needed, he only had one choice. His department uses Macintoshes to create graphics for DEC training courses, one of which requires the graphics to be in DEC's ReGIS format. The only product capable of transforming Macintosh graphics into ReGIS format is Reggie from White Plains Software of Amherst, N.H.

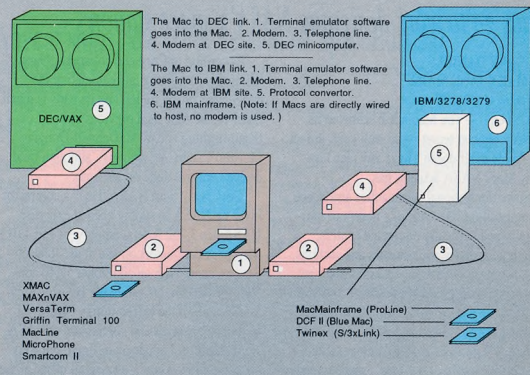
Connecting a Macintosh to a DEC is much easier than connecting it to an IBM because the DEC and Mac communicate asynchronously. Therefore, aside from a simple cable attachment, DEC-Mac terminal emulators are software only and are relatively inexpensive, roughly \$100-\$400.

In fact, if all that is needed is uploading or downloading files, there are free public-access programs like MACX, XMACE or MAXnVAX. Two other products are available at a modest "shareware" fee: Red Ryder from the FreeSoft Co. of St. Louis and MacKermit from the Columbia University Center for Computing Activities in New York.

To take full advantage of sophisticated DEC applications like Datatrieve, DECslide, DECgraph and SASgraph, a user needs a VT-100, VT-220 or VT-240 terminal emulator.

The VT-100, the most common DEC terminal, is relatively easy to emulate, and there are a number of packages that do so. The minimal VT-100 product is MacTerminal, a telecommu-

CONNECTING MACS TO MAINFRAMES



nications package manufactured by Apple. It uses most of the characters available to the terminal and handles the 132-column mode by adding a horizontal scroll bar. MacTerminal users access function keys the same way they do all Macintosh terminal emulators — with on-screen clickable menus. Daniel P.B. Smith, data processing specialist at the Eye Research Institute of Retina Associates of Boston, says, "MacTerminal turns the Mac into a VT-100 with little added but with very little left out either."

VT-100 emulators VersaTerm and VersaTerm-Pro have some extra features, but they also omit a few. Other VT-100 emulators include Griffin Terminal 100 from Metaresearch Inc. of Portland, Ore.; MacLine from TouchStone Software Corp. of Seal Beach, Calif.; MicroPhone from Software Ventures Corp. of Berkeley, Calif.; pLINK from Pacer Software Inc. of La Jolla, Calif.; Smartcom II from Hayes Microcomputer Products Inc., Atlanta; and Super Term from Solanco of Fremont, Calif.

Each has its strengths and weaknesses in the features it provides or lacks. But with the notable exception of Super Term, VersaTerm is the only one that also supports the Tektronics 4105 terminal. (Tekalike, the other major 4105 emulator package, also supports the VT-100 but only with the standard ANSI features.)

The VT-240 is DEC's advanced terminal. It provides more functions and has better graphics than the VT-100. The only terminal emulator that simulates the VT-240 is Mac240 by White Pine Software of Nashua, N.H. This product also mimics the VT-241, which is a color version of the 240.

Connecting a Mac to an IBM mini or mainframe is far more complicated and expensive than hooking up to a DEC. The most common terminals for the IBM Mainframe are the 3278 and 3279; the IBM System/36 and System/38 mini equivalent is the 5251 terminal. Unfortunately, all these terminals differ significantly from the Macintosh, and the discrepancy must be reconciled with a protocol converter, an expensive box full of microchips that sits between the Macintosh and the mainframe.

Macintosh-to-IBM terminal emulators normally cost between \$1,000 and \$2,000.

MacTerminal provides a minimal Mac-mainframe connection but only allows the upload and/or download of text files. It must be used with special hardware, like AppleLink from Apple, to emulate the 327x terminal or with Mac/5251 from Perle GSD Ltd. of Chicago to emulate the 5251.

MacMainframe, a hardware/software package from Avatar Technologies of Hopkinton, Mass., allows the uploading and downloading of Macintosh binary files to and from an IBM mainframe host. This allows users of Lotus 1-2-3, Jazz, Excel, MacDraw and other products to share files.

Pat Natale, vice president of internal auditing at the Prudential Insurance Co. of Roseland, N.J., says the need to communicate was the most important reason for choosing MacMainframe.

"We choose the computer that is best for a particular application," he says. "Our organization has a large number of IBM PC-compatible computers and Macintoshes, and we want them all to be able to talk to each other. MacMainframe eliminates the need to make all those computers compatible since everything goes through the host."

Three products can connect Macs to IBM's System/36 and System/38 minis. Blue Mac (software) and DCF II (hardware) protocol converter by Wall Data of Redmond, Wash., allows connection to 370-series mainframes as well as IBM minis. Using this product, the Macintosh Plus and an ImageWriter emulate an IBM 5251 terminal and a 5256 printer.

KMW System Corp. of Austin, Texas, offers S/3xLink software, which allows the Macintosh SE, Plus or 512K to emulate a 5250 terminal. It also allows the ImageWriter to emulate a 5256 printer. The S/3xLink package also includes a Series II or Series III Twinex Protocol converter (hardware).

A third offering, Perle GSD's Mac/5251 is unique in that it is used with MacTerminal running as a VT-100 emulator. The system allows the user to log onto IBM minicomputers as a 5151 Model 11 workstation. ■



Philip Kutzenko: Decide on software first.

Mergers entrench firms in Mac market

BY RICK LEPAGE

MacWEEK Staff

Mergers have been in the wind for the past two weeks with Symantec Corp.'s acquisition of Living Videotext and Borland International's swallowing of Ansa, but this summer's software wedding bells have only started to ring.

Rumors are that Microsoft Corp., Aldus Corp. and Claris Corp., Apple's software spinoff are actively looking for software companies with products that can help to fill out their product lines. A number of other mergers — Excelan Inc. and Kinetics Inc. as well as CMS Enhancements and Tallgrass Technologies — are obviously aimed at entrenching those firms more solidly in the Macintosh market.

Analysts and vendors point to a number of reasons for this sudden activity: a maturation of the software industry and increased interest in the Macintosh market, fed by confusion in the marketplace over the status of OS/2 and the Presentation Manager, IBM's operating system platform for the PS/2 line of computers.

"The software industry is in a consolidation phase. There's a continuing supply of companies as the industry matures, and there's a lot of economic sense in having mergers for economies of scale in distribution and marketing," says William Shattuck, a securities analyst for Montgomery Securities in San Francisco.

But he says "the software industry doesn't have any particularly huge capital requirements" and that each deal has to be looked at individually before one can see a clear trend.

Jeff Tarter, publisher of the Boston-based Soft-Letter, a software industry newsletter, says, "If they were spaced out a bit more, I wouldn't say it was anything, but it does seem as if there is a trend."

Both Tarter and Shattuck say they believe that the Borland-Ansa deal will have little impact on the Mac market but that the Symantec-Living Videotext deal was definitely Mac-related.

"Borland and Ansa is an interesting case. I think of it really as a bailout. Ansa looks like a company that misunderstood its market," says Tarter. With respect to Symantec of Cupertino, Calif., and Living Videotext of Mountain View, Calif., "what you have is a company (Symantec) that simply believes in the Mac market, and they have acquired people who know how to write Mac software," he says.

Allen Taylor, CMS Enhancements' vice president of marketing, says one reason for the CMS-Tallgrass merger was "we felt it was strategically important for us to enhance and make the mass storage backup market a large part of our business. In addition, both CMS and Tallgrass were moving into the Mac market. With this merger, we instantly have products, and both can move strongly into the Mac market."

The recent deal between Excelan of San Jose, Calif., and Kinetics of Walnut Creek, Calif., points to the new importance companies are placing on products aimed at connectivity and communications. Analysts point to the

acquisition of Centram Systems West earlier by Sun Microsystems as another example of connectivity-driven buyout.

Andrew Singer, vice president of Think Technologies in Lexington, Mass., developer of InBox for the Mac and the IBM PC, says PC companies are looking to gain an advantage in development for IBM's Presentation Manager and, therefore, are turning their eye to the Macintosh marketplace.

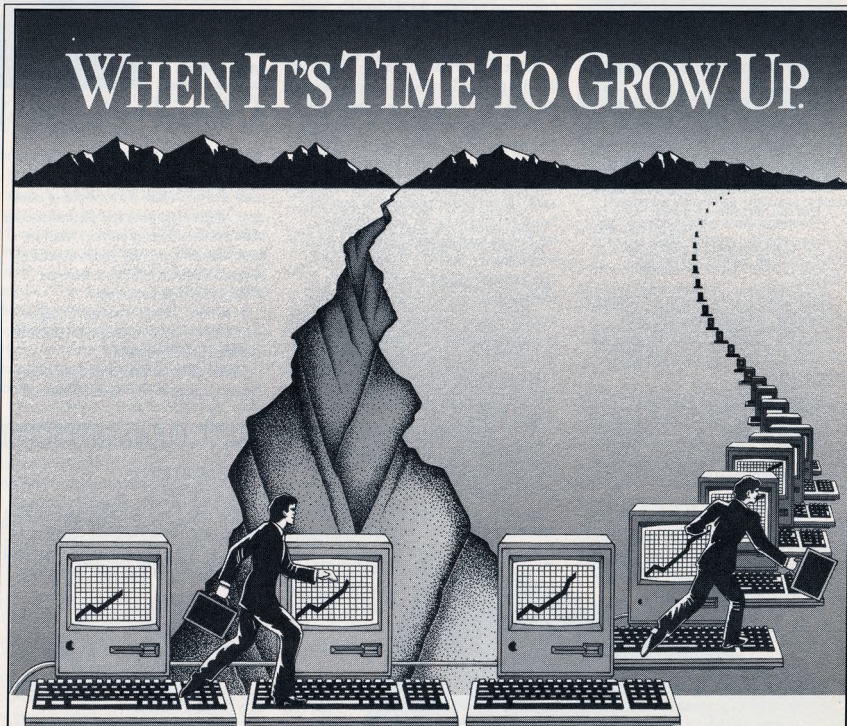
"I think that IBM's commitment to the PS/2 Presentation Manager-style graphical interface makes the Mac user interface credible," Singer says. "Some of the PC software companies attempting to work with the Presentation Manager are realizing there is a long learning curve associated with it."

Also, "the Mac is a pretty hot product," he says. "Its share of market is not as great as the PC market, but it is growing. The PC has sales, but it has been a relatively flat market."

Financial concerns also seem to be behind many of the mergers. Microcomputer software

companies have, in general, lower revenues than hardware companies. While large companies like Microsoft, Ashton-Tate, and Lotus have revenues greater than \$100 million per year, most companies hover at under \$50 million in revenues.

Think's Singer says: "Revenues have to be around \$50 million to \$100 million for companies to go public — and the price-to-earnings ratio for a public company can be two to three times that of a privately held company. Mergers can help them get public faster, as well as seriously increase their value." ■



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Apple's seed grows on college campuses

Computer company maintains reciprocal relationship

BY JEANETTE BORZO

Special to MacWEEK

On the principle that giving is better than receiving, Apple is not slowing down its longstanding policy of seeding universities with its computers.

Apple, whose higher-education marketing department says it is overburdened with requests for donations, is reluctant to disclose a specific dollar amount that it gives annually, but the department enthusiastically discusses innovative programs fostered at colleges by Apple's gifts.

According to John "Bud" Colligan, Apple's manager of higher-education marketing, Apple is extremely selective with its education grants. His department donates to institutions that, independent of any help from Apple, are dedicated to innovative and significant projects.

"Ensuring success is our main goal," says Colligan, who also says that Apple makes its donations "with absolutely no strings attached."

Apple never asks for anything in return for its donations, but a reciprocal exchange between this Cupertino, Calif., computer company and its targeted academic institutions often develops.

To illustrate the benefits enjoyed by colleges and Apple, Colligan points to Academic Courseware Exchange (ACE), a joint venture between Apple and Kinko's Service Corp., a copying and printing company based in Santa Barbara, Calif.

ACE is a marketing vehicle for more than 100 academic software programs, all priced between \$8 and \$40. Through its biannual catalog, Kinko's handles all of ACE's production, distribution and marketing.

By giving computers to colleges, Apple fosters the development of academic courseware, some of which is eventually marketed by ACE.

Colligan says the main goal of ACE is to "improve the use of computers in education." ACE software is priced low enough to make marketing feasible but high enough to return profits to the institutions that develop the courseware.

Professors, who often join their subject-matter expertise with the programming skills of graduate computer science students, get recognition and sometimes royalty payments for their work. The courseware exchange began in January 1986. This January Apple mailed out its first royalty checks to software authors.

Currently, Apple's higher-education marketing department looks at a college's willingness to participate in programs like ACE when considering grant proposals. By donating to a college that participates in ACE, Apple also aids all the institutions that use the software developed at the school.

Cornell University of Ithaca, N.Y., received a grant from Apple in June 1986. Through the Mac Ed Center, the university loans out its Macintosh Pluses to faculty members who are developing courseware.

Model Neuron is a courseware program developed at Cornell that simulates experiments in neuron biology. The classic experiment in which an electric current is applied to a frog leg can be performed on a Macintosh screen with the use of Model Neuron — and without a frog.

Chris Pelkie, who manages the Mac Ed Center, says he credits the Macintosh's "ready-made user interface" system with quickly winning over faculty members.

Pelkie also says faculty who benefited from the IBM grant of \$8 million three years ago are still working on user-interface problems with the IBM models. "In retrospect, they should have waited for the Macintosh," says Pelkie.

Apple also gave a grant to Stanford University in Palo Alto, Calif., for developing courseware. The university requested the grant primarily to make its faculty computer literate, but Barbara Jasinski, manager of the courseware authoring tools (CAT) program, says courseware developed with the grant has received much positive feedback from other academic users. Popular courseware developed at Stanford includes The Theater Game, which lets students direct a play, and The Would-Be Gentleman, which places students in the position of a French bourgeois during the life and reign of Louis XIV of France.

So far, Stanford has sold its software exclusively through ACE, which Jasinski calls "a nice, easy, quick, simple, effective" way to market courseware.

In addition to promoting courseware development, Apple donates computers to colleges to help with specific department projects. The Sloan School of Management at MIT in Cambridge, Mass., has received about 50 computers from Apple in the past three years and is using the grants to develop systems dynamics and to establish presentation software for its master's program.

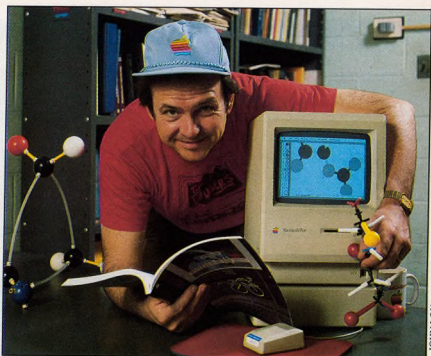
Roy Welsch, a professor of management science, says students have an easier time with the Macintosh than they do with computers that run on DOS. "IBM is just not there," says Welsch.

The University of Illinois at Champaign/Urbana is benefiting from Apple's grant to its National Center for Supercomputing Applications. In three separate donations, the campus center has received \$350,000 worth of Macintosh Pluses, Macintosh SEs, hard disks and printers. The center uses the Macintosh to give its scientists access to the Cray, the supercomputer for which the center — one of five National Science Foundation supercomputer centers in the country — is named.

The center uses the Macintosh's color and graphics capabilities for scientific applications with a version of Telenet that was developed at the University of Illinois.

According to Brad Fortner, assistant manager of Macintosh development at the center, "We've shut up all those scientists who said that the Macintosh is a toy."

Allen Smith, a professor at Drexel University in Philadelphia, developed a program called the Molecular Editor for Apple's Academic Courseware Exchange.



At Drexel University, Macs are mandatory

PHILADELPHIA — One of Apple's model campuses is Drexel University, where having ready access to a Mac is a condition of enrollment. Ninety-eight percent of the students own Macs and the university provides Macs for those who don't, says Jay Minas, director of computer services. Altogether, there are almost 11,000 Macs on campus.

In addition, Drexel is one of the biggest contributors to Apple's Academic Courseware Exchange (ACE) program.

Drexel chose the Macintosh from among 290 microcomputers for its ease of use and

universal applicability, says Brian Hawkins, formerly the associate vice president of academic affairs at Drexel.

But the decision to computerize the school had to do more with the quality of education than with student marketability. "It enables a course to cover material more thoroughly," says Minas.

Drexel students work six months of every year. Gary Hamme, director of cooperative education says many students have exposed their employers to the virtues of the Mac during their work periods. ■

Apple hopes investment in future will pay off

BY HEATHER LEITCH

Special to MacWEEK

CUPERTINO, Calif. — Students who become accustomed to using Macintosh computers on campus will carry their affinity for Apple products with them when they enter the business world.

That's Apple's theory, anyway — and it's the basis for the company's massive investment in hardware grants, student discounts and educational software development.

The theory sounds good, but in practice the early results are mixed.

"We see a synergy between the university market and business," says Kathleen Dixon, an Apple spokeswoman. "There are people bringing Macs into work with them. We know it has happened on a case-by-case basis."

If the theory works on a broad basis, the potential payoff is considerable. Among the 32 leading universities participating in the Apple University Consortium (AUC) program, 80 percent of the students — many tens of thousands — use Macintoshes routinely.

"They are Mac fanatics," says Tim Bajarin, executive vice president of Creative Strategies, a Santa Clara, Calif., market research company. "The graduating group of aficionados can only have a positive effect on Apple."

The university-to-business Mac connection has already produced fruit at Franklin and Marshall University in Lancaster, Pa., according to Roger Godin, the school's director of career services.

"Our students' knowledge of the Mac has helped them find jobs," Godin says. "We even

had a student hired in information systems consulting even though we don't offer a computer major here. There aren't too many jobs left where you don't use computers."

But being computer literate on a Mac does not guarantee that students will use Apple hardware when they enter the business world. Ironically, one of the largest employers of graduates of Drexel University, a leading AUC member, is IBM.

"IBM doesn't care if the kids use Macs because they can learn another micro in a flash," says Gary Hamme, Drexel's director of cooperative education.

Preparing students to use machines other than the Macintosh isn't quite what Apple had in mind. The problem, according to industry analysts, is that much of the business world is already entrenched in using the IBM PC.

"If they go into a job where the IBM PC is used and they want to keep their jobs, they'll learn the PC," says Bajarin.

Analysts say they believe Macintosh-specific experience may become more important as the Macintosh becomes more ingrained in the corporate landscape. Analyst Bill Lempeis of Datateq Inc., a San Jose, Calif., market research firm, says Apple has had considerable success penetrating the business market in the past two years.

As a long-term investment, Bajarin says he believes the campus outreach program will pay off for Apple.

"It may take a while to reach full force, but eventually the students will propagate the Macintosh message," he says. ■

COLLEGE

Continued from Page 10

Fortner says the grant from Apple has benefited the university by attracting grants from other institutions; the university has benefited Apple by giving the Macintosh "high visibility" in the supercomputer center.

Apple's higher-education marketing department does not confine its donations to the sciences, however, but makes donations to help institutions develop humanities programs as well.

Wayne State University in Detroit received 73 Macintosh Pluses in the fall of 1986 for its English department's new composition and text analysis program.

John Camp, coordinator of academic computing at Wayne State, says the university applied to several major computer companies for grants, but "the computer of choice was clearly the Macintosh," Camp says.

"Wayne State is an urban institution with no pot of gold. We're real thankful for the grant from Apple, and we intend to pay them back," he says.

The University of South Carolina at Columbia received a grant of 40 Macintosh Pluses in January, and the computer science department is now writing software to create an instructional laboratory for freshman English classes.

Students and teachers will be able to examine the same piece of writing simultaneously through a computer link, creating a writer-editor relationship.

According to Bob Cannon, professor of computer science at the university, Apple also has given financial assistance to the computer science students who are working on the program, a program from which Cannon thinks Apple will benefit in the future when it is used at other colleges and universities.

"Macintosh interfacing is ideal for our approach," says Cannon, who also says his department will adapt the new instructional laboratory system to teach programming to computer science students.

Other institutions to which Apple has made donations have made the Macintosh their "campus computer."

Dartmouth College in Hanover, N.H., another recipient of grants from Apple, is also an Apple-dominated campus, with approximately two-thirds of the faculty using Macs.

Among the courseware programs developed at Dartmouth are Appletones and Mozart, programs that teach the basics of music composition.

Don Spicer, director of academic computing at Dartmouth, estimates 80 percent of entering students take the college's advice and buy a Macintosh by the end of their first year at school.

Dartmouth chose the Macintosh because, according to Spicer, it embodied the "direction of computing of the future."

That sentiment seems to prevail on campus after campus across the United States. Says John Gregory of Drexel University: "I can't think of another machine that could meet the needs of all the diverse disciplines of an entire university." ■

Students find Macs a bargain at school

BY MICHELE McCORMICK

SPECIAL TO MacWEEK

PALO ALTO, Calif. — University students are finding that the best Macintosh buys are right on campus. Apple has established special agreements with colleges across the country, allowing them to sell Macs to students at discounts of up to 40 percent off retail.

The programs have existed at some schools since 1984, and as more schools line up with Apple, Macintosh is becoming a "must-buy" item on students' shopping lists.

"Apple has targeted the Macintosh to this program," says Tom Bayley, director of the University of California at Los Angeles' student store. "Basically, I think they felt this was the machine best suited to university use."

Universities can offer reduced prices through two Apple programs. About 40 schools are part of the Apple University Consortium, which offers the biggest price breaks but requires substantial support from the schools in return. Another Apple initiative, the University Purchase Program, offers slightly smaller discounts but with fewer strings attached. Other factors, such as volume of purchase, also affect the discount.

Markups within campus stores also vary widely, depending upon such things as store overhead costs, level of support from the university and services provided.

"Our markup is 5 percent above cost," says Richard Marquez, manager of Microdisc, the computer division of the Stanford University bookstore in Palo Alto, Calif. "I don't think you'll find a university that marks up less."

Stanford's Microdisc (short for microcomputer discounts) was the first member of the Apple Consortium. Originally operated by the university, the bookstore has been a private corporation since June 1986. Like most of the stores catering exclusively to local students, Microdisc is a non-profit operation that must make only enough money to support itself.

The differences among the organization of campus stores affect the prices schools offer for Macintosh machines. The prices of Macs at the nine University of California campuses, for example, are different.

But although prices vary from campus to campus, the strict rules concerning who may buy Macs at the stores are universal. Only full-time currently registered students, and full-time faculty and staff are eligible to purchase the discounted Macs. In addition, each customer is entitled to purchase only one system.

"We maintain a database of purchasers to check that we're selling just one system per customer," says Bayley.

Also, students are allowed to buy discounted Macintoshes only at their home campuses. The UC system, for example, acquires Macs through Apple's University Purchase Program. Even though all nine campuses participate, students may make purchases only at the specific campus on which they are registered.

The careful restriction of customer access and the limits on purchases are requirements of the university stores' contractual agreements with Apple.

The savings are substantial. Typically, students who buy their Macs at campus stores can expect to save hundreds of dollars. "If somebody can outsell me, if they can give a better price, then I don't carry that item," says Mary Volpe, manager of the University of Maryland's Computer Emporium in Baltimore.

The low prices at all participating schools have resulted in a steady sales volume. "We expected to have peak periods, but we haven't," says April Roy, manager of Scholar's Workstation at the University of California, Berkeley. "We've had a constant flow. We're generally getting 20 to 30 orders a day. It's an extremely high volume."

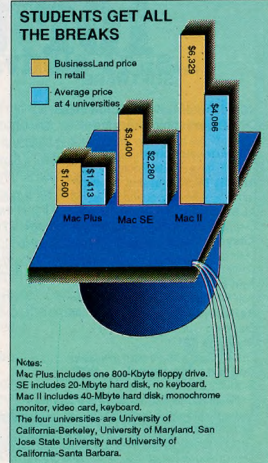
Another result of the many bargains has been the skyrocketing popularity of the SE, particularly with a 20-Mbyte hard disk.

"Before the SE came out, it was the Mac Plus [that was popular]," says Kevin Warner, manager of the Spartan Bookstore at California State University, San Jose. "Now sales are split, one-third Mac Plus, one-third SE with two floppy drives, and one-third SE with hard disk."

"For students, it's been the Mac Plus," says Volpe, "but with the introduction of the SE, they're buying that. They want the MS-DOS compatibility. Our sales have dramatically jumped just in the past few months."

Apple's pricing on the SE has come as a surprise to some managers. Costs are so close to Mac Plus levels that students don't hesitate to move up. "The Mac II will be selling in the future," says Bayley. "Right now, students are moving to the SE, and they want it with the 20-Mbyte internal [hard disk]."

"If you compare the Mac Plus to the SE," says Marquez, "there isn't a large price difference. If you're thinking of the Mac Plus with one external drive, the difference is only \$120. We sell more SEs than Pluses on a 70-30 basis. And of the SEs,



we're selling 65 percent with hard disk and 35 percent with floppies."

The Mac II is being considered more for university internal use. Many campuses also supply their university's business needs, selling them computers at prices slightly lower than those available to students and faculty.

Managers say cut-rate prices on campus aren't necessarily bad news for off-campus stores. Dealers near Macintosh campuses can expect to do plenty of business in peripherals and software not stocked in the fairly limited inventories of the college stores, as well as to do business with potential customers who catch Mac fever on campus but are not eligible to make purchases at the university store.

And, as Warner says, retailers may see a delayed benefit from the on-campus boom. "Once these people graduate," he says, "they'll go out in the community and convince their businesses that they ought to buy Macintosh." ■



Students at Stanford University in Palo Alto, Calif., buy their Macs from Microdisc, which was the first member of the Apple University Consortium.

Hardware and software for the business Mac.

SOFTWARE

NCP denotes not copy-protected.
CP denotes copy-protected.

Aegis Development ... NCP	
Doug Clapp's Word Tools	\$42.
Affinity Microsystems ... NCP	
Tempo (power user's macro utility)	55.
ALSoft ... NCP	
DiskExpress (maximize disk performance)	27.
Altsys ... NCP	
Fontastic Plus (advanced font editor)	49.
Fontographer (Laserwriter font editor)	245.
Ann Arbor ... NCP	
FullPaint (advanced Paint program)	53.
Berkeley System Design ... NCP	
Stepping Out (requires 512k)	59.
Blyth ... CP	
Omnis 3 Plus (multi-user available)	call
Borland International ... NCP	
Sidekick 2.0	59.
Reflex (information management analysis)	59.
Turbo Pascal (HFS compatible)	59.
BrainPower ... NCP	
Graphix (DA graphics organizer)	69.
Designscope (electronics circuit design)	129.
StatView 512+ (req. external drive, 512k)	179.
Bravo Technologies ... NCP	
MacCalc (easy to use spreadsheet)	85.
CasadyWare ... NCP	
Font Tools (two-disk set)	29.
Fluent Laser Fonts (vols. 1-15)	each 48.
Central Point Software ... NCP	
Copy II Mac (includes MacTools)	20.
Challenger Software ... NCP	
Mac3D (3D graphics, CAD features)	119.
Chang Labs ... CP	
Rags to Riches Ledger or Payables	125.
Rags to Riches Receivables (req. 512k)	125.
Inventory Control	243.
Professional Billing	243.
Cortland ... CP	
CricketDraw (7 new disk accessories)	34.
Cricket Software ... NCP	
Statworks (statistical package)	77.
Crickit Graph (multiple windows)	127.
Crickit Draw (advanced draw capabilities)	177.
Data Tailor ... NCP	
Trapeze (spreadsheet, reqs. 512k)	173.
DataViz ... NCP	
MacLink Plus (transfer Mac/IBM data)	159.
Digital, etc. ... NCP	
Turbo Macaccountant (GL/APAR/Payroll)	262.
Dow Jones ... CP	
Market Manager Plus 1.5	
Dubi-Click Software ... NCP	
Calculator Construction Set	39.
World-Class Fontset (both Volumes)	49.
WetPaint Clip Art (both Volumes)	49.
Enabling Technologies ... NCP	
Easy3D (create solid 3D objects)	89.
Pro 3D (3D shaded modeling)	199.
Forthought ... NCP	
FileMaker Plus (feature-packed database)	159.
PowerPoint (professional presentations)	249.
FWB Software ... NCP	
Hard Disk Backup (protect hard disk info)	38.
Hard Disk Partition (speeds up hard disk)	38.
Hard Disk Util (program backup)	56.
Ideaform ... NCP	
MacLabeler (print disk labels)	29.
DiskQuick (casing floppies & hard drives)	29.
Imagine ... NCP	
Smart Alarms (DA reminder system)	38.
Industrial Computations ... NCP	
Powermath (equation solving tool)	59.
Infosphere ... CP	
LaserServe (network software)	65.
MacServe (network software)	175.
Innovative Data Design ... NCP	
MacDraft (new updated version, 512k)	159.

LaserWare ... CP	
LaserWorks (requires 512k, Laserwriter)	\$229.
LaserPaint (requires Mac Plus, Laserwriter)	375.
Legislot/NoLo Press ... NCP	
WillWriter 2.0 (prepare your own will)	31.
Letraset ... NCP	
ReadySet, Go!	249.
Linguist's Software ... NCP	
Tech (1000 different symbols)	59.
Foreign language fonts	call
Living Videotext ... NCP	
More (outlines, windows, & tree charts)	158.
Lundeen & Associates ... NCP	
WorksPlus Spell	39.
Micro Analyst ... NCP	
Mac Zap (recover crashed hard disks)	36.
Microsoft	
Basic Interpreter 3.0 (NCP)	64.
Chart 1.02 (42 chart styles, CP)	72.
Multplan 1.1 (63 col. by 255 rows, CP)	105.
File 1.05 (flexible data manager, NCP)	111.
Basic Compiler 1.0 (NCP)	119.
Fortran 2.2 (compiler, NCP)	189.
Works 1.0 (integrated tool, NCP)	189.
Excel 1.04 (power spreadsheet, NCP)	224.
Word 3.0 (word processor, NCP)	239.
Mindscape ... CP	
GraphicWorks 1.1 (newsletters, posters)	48.
Monogram ... NCP	
Dollars & Sense (home, small business)	81.
Odesta ... NCP	
Double Helix (relational, custom menus)	275.
SuperUser Index (requires 512k)	439.
OWL International ... NCP	
Guide (hypertext, free-form info)	79.
Guide Envelope System	109.
Palantir ... NCP	
inTalk (communication to emulation)	99.
PBI Software ... NCP	
HFS Locator (DA organizer for HFS)	26.
HD Backup (supports MFS, HFS)	29.
Personal Computer Peripherals ... NCP	
HFS Back-up	34.
PROVIEW Development ... NCP	
OverVIEW 2.0 (power-packed database)	149.
Satori ... NCP	
MailMaier (mailing lists)	74.
BulkMaier Plus (up to 90,000 names)	225.
Legal Billing (attorneys to accountants)	385.
Legal Billing II (full trust accounting)	575.
Project Billing (architects to engineers)	445.
Silicon Beach Software ... NCP	
Silicon Press (printer utility, 512k)	41.
SuperPaint (advanced graphics program)	54.
Software Discoveries ... NCP	
Record Holder Plus (data manager)	59.
Software Ventures ... NCP	
Microphone 1.1 (includes Gluew)	119.
Solutions, Inc. ... NCP	
SmartScrap & The Clipper	41.
Glue (creates "print to disk" capability)	41.
State of the Art ... CP	
Electric Checkbook (print checks)	28.
SuperMac Technology ... NCP	
SuperSpool	39.
DiskIt (backup & restore utility)	49.
SuperLaserSpool	39.
Multi-User SuperLaserSpool	259.
Survivor Software ... NCP	
MacMoney (financial planner)	42.
Symmetry ... NCP	
Acta 1.2 (outline/writing desk accessory)	38.
PictureBase (clip art manager, 512k)	44.
T/M&K ... NCP	
ClickArt Personal Graphics, Effects,	
Publications, Letters Vol. 1 or 2, Holidays,	
Business Image	each 28.
Bombay, Plymouth, or Seville Laser font	46.
Write Now (word processor)	104.
Think Technologies ... NCP	
LaserSpeed (Laserwriter utility)	67.
Lightspeed Pascal (includes debugger)	87.

Lightspeed C (top-rated C Compiler)	\$127.
InBox Starter Kit (CP)	235.
InBox Personal Connection (Mac & PC)	call
TML Systems ... NCP	
TML Source Code Library	58.
TML Source (compiler, req. 512k)	68.
TrueBasic ... NCP	
True BASIC (fast, flexible & portable)	59.
Algebra 1 or II, Pre-calculus, Trigonometry,	
3D Graphics, Discrete Math, Probability,	
Chippendale utilities & Calculus	each 35.
TrueSTAT (statistics)	58.
Runtime (create stand-alone applications)	59.
William & Macias ... NCP	
myDiskLabeler (design & print labels)	24.
myDiskLabeler w/Color (req. Imagewriter II)	35.
myDiskLabeler w/Laserwriter option	35.
Working Software ... CP	
Formerly Greene, Johnson	
Spellswell (spelling checker)	45.

HARDWARE

Manufacturer's minimum limited warranty period is listed after each company name. Some products in their line may have longer warranty periods.

Note: Some hardware items are available in either platinum or beige color. Please specify.

20 Megabyte SCSI Hard Drive	569.
AST Research ... 2 years	
AST TurboScan (disk rip scanner)	1479.
AST 2000 (20 MB, 20 MB tape)	1479.
AST 4000 (74 MB, 60 MB tape)	3895.
Curtis Manufacturing ... lifetime	
Diamond (6 outlets)	29.
Emerald (6 outlets; 6 ft cord)	36.
Sapphire (3 outlets; EMU/RFI filtered)	47.
Ruby (6 outlets; EMU/RFI filtered; 6 ft cord)	55.
Dove Computer ... 90 days	
MacSnap Memory Upgrades	call
Ergotron ... 1 year	
Mouse Cleaner 360°	15.
MacTilt or MacTilt SE	74.
MacBuffer 512k	329.
MacBuffer 1024k	429.
Farallon Computing ... 1 year	
PhoneNet PLUS (DB-9 or DIN-8)	39.
Hayes ... 2 years	
Smartcom II (communications software)	88.
Smartmodem 1200	299.
Smartmodem 2400	449.
InterBridge (connect AppleTalk networks)	599.
IOmega ... 90 days	
Bernoulli Box (dual 10 MB w/SCSI)	1879.
Bernoulli Box (dual 10 MB, AppleTalk)	call
Kensington ... 1 year	
AppleTalk Cable Clips or Connectors	each 1.
Mouse Cleaning Kit w/Mouse Pocket	17.
Disk Drive Cleaning Kit	20.
TiltSwivel	22.
Universal Copy Stand	24.
Polarizing Filter or Surge Suppressor	34.
System Saver Mac or Control Center	64.
A-B Box (for the Mac Plus)	64.
Turbo Mouse	85.
Koala Technologies ... 90 days	
MacVision (digitizer)	175.
Migent ... 1 year	
Pocket Modem (ext. 1200 baud)	169.
Mirror Technologies ... 1 year	
Magnum 800 External Drive	209.
Magnum 20 Tape Backup	899.
MagNet 40/40 (40MB, 40MB tape)	2395.
MagNet 20x (w/cable)	779.
MagNet 30x (w/cable)	949.
MagNet 40x (w/cable)	1299.
MagNet 85x (w/40MB tape)	3995.
Network Specialties ... 1 year	
Stretch Screen (19" monitor)	1579.

Personal Computer Peripherals ... 1 year	
MacBottom Hard Drive 21MB (SCSI)	\$865.
MacBottom Hard Drive 45MB (SCSI)	1295.
Summagraphics ... 90 days	
MacTablet 12" x 12" (etching)	379.
Systems Control ... 2 years	
MacGuard (surge protection)	55.
Thunderware ... 90 days	
ThunderScan 4.0 w/Power Port	199.
Western Automation ... 1 year	
DASCH RAMdisk 2000k	459.

DISKS

Double-sided Diskettes

Sony 3 1/2" Disks (box of 10)	21.
MAXELL 3 1/2" Disks (box of 10)	21.
Fuji 3 1/2" Disks (box of 10)	21.
Verbatim 3 1/2" Disks (box of 10)	23.
3M 3 1/2" Disks (box of 10)	23.

INFORMATION SERVICES

Compuserve	
Compuserve Information Service	24.
Dow Jones	
Dow Jones News/Retrieval Membership Kit	24.

ACCESSORIES

I/O Design	
Imagewriter II (Imagewriter II carry case)	49.
Macinaware Plus (Mac Plus carry case)	69.
Macinaware SE (Mac SE carry case)	89.
Kalmor Designs	
Teakwood Roll-top Case (holds 45 disks)	14.
Teakwood Roll-top Case (holds 90 disks)	21.
Moustrak	
Moustrak Pad (standard 7" x 9")	8.
Moustrak Pad (large 9" x 11")	9.
Sensible Softworks	
High Quality "MacAttire" dust covers	7-17.

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Max Out

Corporate image.



Way back when, in the peaceful little village of Marlow, NH (pop. 552), Lucian and Lucius Tinker laid the foundation for our Macintosh mail order megalopolis. Sure, they thought a mouse was something you set traps for, and chips came from buffaloes, but when it came to running a business, Lucian and Lucius knew the secrets. Like taking the time to answer strangers' questions. And dealing fairly with every customer. And always delivering on time.

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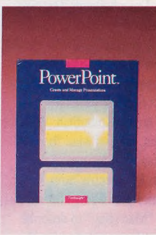
The True, the whole True...



From the people who gave you BASIC to begin with, comes *True BASIC*. It's the flexible structured programming version of BASIC with a full range of control libraries. And, if you've been lusting after this little language, now is the time to take the plunge. Because we've got two, that's two, two *True* deals in one. For starters, we've cut a monster chunk out of the price of the basic package. And, if you buy *True BASIC*, we'll sell you either or both of two of the most popular optional libraries, *Calculus* and *3D Graphics* for only \$25. These programs are not copy-protected.

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Calculus (REG. \$35)	with purchase of <i>True BASIC</i> \$25
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There are lots of great programs for creating graphs, time charts, cash flow projections, written strategies, etc. but turning them into effective presentations can be a bear.

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**Forethought
PowerPoint** (not copy-protected) **\$249**

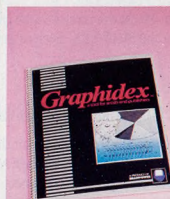
Pass the graphics!



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**BrainPower
Graphidex** (not copy-protected) **\$69**

Micro bookkeeper.

If you're running a small or mid-size business, turn the books over to *Turbo Maccountant*. It combines general ledger, accounts receivable, accounts payable, invoicing, and payroll into one easy-to-use, fully-integrated program. You can keep all ledgers open simultaneously, moving back and forth between them as often as you like. The program is also compatible with most major business programs, so you can transfer files directly to your spreadsheet or word processor.

Digital, Etc.
Turbo Maccountant (not copy-protected) **\$262**



Back Up!



DiskFit is a clever little backup/disk optimizing utility. It greatly simplifies the process of backing up your data from your hard disk to floppies or Bernoulli cartridges. And it also does some serious optimizing. Instead of making a completely new copy of every changed file, it makes sure your backup only grows as your files grow. *DiskFit* also stores files in standard Macintosh format, and can be used to optimize storage on your hard disk for faster access.

**SuperMac Technology
DiskFit** (not copy-protected) **\$49**

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THE LONG VIEW

Lawrence
Magid

Several years ago when Apple first announced the Mac, I asked (then Chairman) Steve Jobs about the company's plans for end-user training. The response was about what you'd expect if you went into a restaurant to ask how they plan to control their roach population.

Times have changed. While the Mac remains relatively easy to use, the business software it runs is becoming increasingly powerful and complex.

For many users, training on the Mac became a serious concern when Microsoft introduced Excel. Few would disagree that Excel is easier than Lotus 1-2-3, its MS-DOS counterpart. However, its power comes not from the interface, but from knowing how to use its advanced features. Microsoft Word 3.0 is easy to use for simple writing and editing, but it's another matter if you wish take advantage of its style sheets, formatting commands, indexing, spell checking, table of contents and other advanced features.

PageMaker greatly simplifies the process of creating complex documents. But its publisher, Aldus Corp., went to great expense to commission a full-day hands-on training course to familiarize users with the program's finer points.

I just got my copy of ACIUS' 4th Dimension. With more than 1,000 pages of documentation, the program's power and complexity rivals its counterparts from the IBM PC world.

In a sense, the Mac's easy-to-use interface increases the need for training. Like many users, I often ignore the manuals and jump right into the programs. I can get away with it, but I'm missing shortcuts and power tools. It's like wading in the shallow end of a pool because you don't know how to swim.

Macintosh training can take a number of forms. PacTel Information Systems operates 15 computer-training centers throughout the

Western United States. While most of the training demand is for MS-DOS software, an increasing number of customers are asking for Macintosh training, according to Julie Arca, who heads the company's education department. "Mac training is picking up considerably now that companies are getting off their 'PC-only' kick and buying Macs," she says. PacTel offers hands-on classes in Word, Excel, PageMaker and other products.

Susan Barton is president of Personal Training Systems, a San Jose, Calif., company that makes audio-cassette training tapes for the Macintosh. Barton says she decided to skip the crowded IBM PC training field and concentrate on the Mac with beginning, intermediate and advanced courses in Word 3.0, Excel, PageMaker 2.0 and Microsoft Works. The self-paced courses, which cost between \$39.95 and \$49.95, consist of a 60-to-90-minute tape, a disk with sample files and a summary card. I've never been a fan of audio/video training materials, but after spending an hour with the Excel macro course, I'm a believer. Her tape more than makes up for Microsoft's rather arcane manual.

Although she won't release sales figures, Barton says her company has sold "thousands and thousands" of its training packages.

Book publishers are not so bullish. With only a few exceptions, sales of Mac "how-to" books have been disappointing, especially when compared with PC-specific titles. One executive from a major publishing company has coined the term "Mac alley" to describe the section of the warehouse where unsold Mac books are stored. Danny Goodman, who has written several books about both the PC and the Mac, attributes poor book sales to the Mac's ease of use. "You can get further along with a program without outside help," says Goodman. "With some PC programs, you need help just to start the program."

Barton has another explanation: "Mac users aren't book readers. People bought the Mac because they want ease of use. They are impatient."

As the Mac proliferates in large institutions, we will see an increasing number of users who could care less about the technology or the joy of computing and are simply there to get the job done. Some of them will still be highly motivated, while others will simply do what they are told. In either case, the need for training becomes paramount. ■

TO THE EDITOR

The straight scoop

It has been brought to my attention that certain facts surrounding the recent breakup between Target Software and Deneba Systems have been miscommunicated. This has resulted in the publication of several articles and editorial briefs in a number of publications that have cast a shadow on the long-standing reputation of Target Software.

On May 28, 1987, Deneba Systems served written notification of its termination of an 18-month-old publishing agreement with Target Software. At this time Target ceased any and all promotional and sales activity involving Deneba products. The products programmed by Deneba and published by Target included MacLightning 2.0, Voila!, Memorandum, Merriam-Webster Thesaurus for Microsoft Word, Thesaurus, Medical Dictionary, Legal Dictionary and the unreleased upgrades to MacLightning, Mentor and Mentor Plus.

Target's intention in dealing with this matter has been to work things out amicably and to everyone's mutual satisfaction. Regardless of the outcome of this situation, Target intends to continue to support and service all registered users of any Target Software products.

Recent speculations on Target Software's financial condition also have been inaccurate. Contrary to popular belief, the termination of Target's relationship with Deneba does not make Target "... a one-product company." (Nor does it in any way hinder Target's upcoming release of Scoop.) Target maintains relationships with a number of developers and currently is in the midst of serious negotiations on several key products. These products include software used in connection with CD-ROM and desktop communications applications.

Target's financial position is sound. Matters with Deneba will in no way affect the upcoming release and subsequent market support of Scoop (Target's long-awaited entry into desktop publishing). Scoop is expected to begin shipment prior to the Mac Expo in Boston. Statements to the effect that Scoop is "30 percent done and very buggy" are absolutely false.

Salvatore F. Patalano, chairman and CEO
Target Software, Miami

Laptop fan at Apple

I just want to clarify the comment made in Mac the Knife's column regarding "Sculley's closest associates" (June 1).

I am John Sculley's technical advisor. I use a Zenith 181 portable computer when I travel because much of my work entails writing, as you can probably imagine. In addition, our in-house mail system (AppleLink) is also available in an MS-DOS version from GEISCO. That allows me to communicate with corporate headquarters while on the road. I also have a Tandy 102, Epson Geneva and HP Portable Plus. I am a laptop fan. I personally use a laptop because I love computers. Of course, Macintosh is my favorite and the only really personal computer.

I wish you and MacWEEK much success in your new publication.

Joe Hutsko, office of the chairman and CEO
Apple Computer Inc., Cupertino, Calif.

Macintosh programming oversimplified

I read with interest your article "Macintosh programming too complex?" (June 29). I agree completely with the conclusion that although Macintosh development is more time-consuming than development on other personal computers, the results are well worth the time spent achieving them. I feel, however, that your treatment of programming languages was unfair and that you distorted or ignored many of the issues surrounding Macintosh programming.

When you mention compilers, you only mention BASIC compilers, and you place them at a level of programming somewhere below "professional." There are at least four Pascal compilers for the Macintosh and at least as many C compilers, as well as LISP, Prolog, FORTRAN, Modula-2 and OPS-5 compilers. All of these compilers allow complete access to all of the Macintosh Toolbox routines and generate quality code suitable for use in commercial applications. Macintosh programmers do not need to use assembly language to write fast, powerful applications that take full advantage of the Macintosh Toolbox, even though many programmers do.

Finally, your point about the best Macintosh programs being event-driven is understated. There are virtually no commercially available Macintosh programs that are not event-driven. Programs that use the mouse, pull-down menus, etc., have no choice but to use an event-driven structure.

Patrick J. Kuras, higher education intern
Apple Computer Inc., Marlboro, Mass.



LOUIS DUNN

MORE BYTES FOR THE BUCK

The first wave
of third-party
internal hard
disks for the
Mac SE



BY RIC FORD

MacWEEK Staff

The first wave of internal hard disks for the Macintosh SE has just arrived from third-party vendors. This review compares six drives in the 40-Mbyte range, hot off the assembly line and ready to compete with Apple's own Internal 20SC drive. Apple has name recognition, a very strong dealer base and a reputation for quality, but the third-party drives — from CMS Enhancements Inc., Peripheral Land Inc., General Computer Corp., Mirror Technologies, Warp Nine Engineering and Rodime Inc. — offer more attractive price/performance ratios.

Basic issues

There are a number of questions to ask before buying a hard disk. The first is whether an internal drive or an external drive is more appropriate. If you travel a lot with the Macintosh, you may want the convenience of an

internal drive. Its disadvantages are that you cannot disconnect it or carry it around without the Macintosh, and you cannot get it repaired or upgraded while you use the Macintosh. Both internals and externals are available in different prices and sizes, but there are many more externals to choose from at the moment.

The next questions are price and capacity. The old system managers' rule still goes: Data will expand to fit the space available. The third-party disks reviewed here offer at least twice the storage of Apple's 20SC with little, if any, price penalty. The chart on Page 18 gives cost per Mbyte figures for comparison. Note that some manufacturers have provisions for using the second internal-floppy drive from the Macintosh SE — an additional benefit on the bottom line. Mirror and Warp Nine both offer rebates of \$100 for sending in the extra floppy drive, and they also sell parts to convert it to an external drive. Peripheral Land supplies an external case and cable

as part of its standard package.

The manuals supplied with these drives were disappointing. While the CMS documentation is thorough and well-written and Warp Nine's installation instructions are first-rate, the manuals in general are not up to Apple's standards. Even General Computer's documentation has gone downhill from the excellent example set with the original HyperDrive manuals.

Is there a technician in the house?

The Macintosh SE architecture is not truly "open," yet not exactly "closed" either. Its single slot and standard connectors give it some of the expandability of an Apple II or IBM PC, and it is no longer necessary for vendors to resort to soldering or "CPU clips." But like the original "closed" Macintosh, the SE has a display tube (CRT) crowded in with the rest of its components, making any internal hardware change a job for a technician.

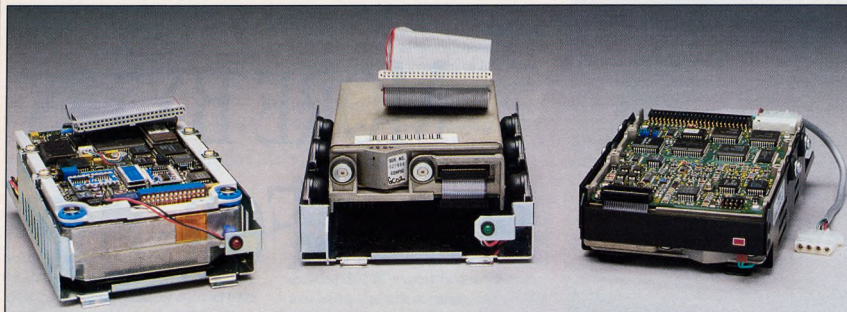
Warp Nine, the only company that assumes you will install the disk yourself, provides a complete set of tools and an excellent installation manual with appropriate warnings and instructions. All the other vendors encourage you to have the work done by your dealer, although some include installation notes in the user manual.

Hardware

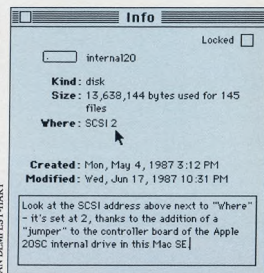
There is a surprising variety of configurations among these hard disks. (See chart, Page 16.) The Peripheral Land PL40i has a side-mounted controller card, while the Mirror and Warp Nine drives mount the controller on a separate platform above the disk and just under the Macintosh CRT. General Computer, CMS, Rodime and Apple have compact and easy-to-install enclosures with integrated controllers.

Some drives have rubber shock mounts for

Continued on next page



Shown from left are the internal drives for the Mac SE by Rodime, General Computer and CMS Enhancements. Rodime's drive looks identical to Apple's.



JONATHAN DEMPEY/HART

Despite the manual's claims to the contrary, Apple's Internal 20SC drive can have a SCSI ID other than zero by adding jumpers to the pins on the controller.

Rodime 450 RX

Rodime Systems ★ ★ ★
29525 Chagrin Blvd., Suite 214
Pepper Pike, Ohio 44122
(216) 765-8414
\$1,595 (list price)
Formatted capacity: 43 Mbytes
Warranty: 1 year
Strengths: fast; extra capacity; reputation for reliability; vendor telephone support.
Weaknesses: no provision for second floppy; backup program changes date during restore.

General Computer FI/40

General Computer Corp. ★ ★ ★
215 First St.
Cambridge, Mass. 02142
(617) 492-5500
\$1,599 (list price)
Formatted capacity: 38 Mbytes
Warranty: 1 year
Strengths: fast; quiet; shock-mounted; extensive utilities, including print-spooling.
Weaknesses: no provision for second floppy; phone support from dealers only.

CMS PRO40-SE/i

CMS Enhancements Inc. ★ ★ ★
1372 Valencia Ave.
Tustin, Calif. 92680
(714) 259-9555, Ext. 215
\$1,395 (list price)
Formatted capacity: 38 Mbytes
Warranty: 1 year
Strengths: quiet; good manual; good utility program; vendor telephone support.
Weaknesses: no provision for second floppy; slower than Apple's internal hard drive.

Apple Internal 20SC

Apple Computer Inc. ★ ★ ★
20525 Mariani Ave.
Cupertino, Calif. 95014
(408) 996-1010
\$999 (list price for hard drive alone)
Formatted capacity: 19 Mbytes
Warranty: 90 days
Strengths: good utilities, documentation and performance.
Weaknesses: small capacity; expensive; short warranty; phone support from dealers only.

Continued from previous page
added protection, but no disk should be moved while it is running, and all should be safe to transport when they are properly shut down. ("Head parking" is generally automatic, although it sometimes depends on the user properly choosing Shutdown in the Finder.)

A problem arises when more than one SCSI disk is used on a single Macintosh. In this case, the drives must have different SCSI ID numbers or nothing will work. Only General Computer's FI/40 and the Mirror/Warp Nine twins permit easy modification of the ID number.

The FI/40 Manager utility provides software-selectable IDs, while the Mirror and Warp Nine units have pushbuttons on the back of the drive unit. (They are accessible through the pop-out accessory port panel on the back of the SE — provided it is not in use to hold a connector for some other add-on device). Apple's documentation says that the ID number of the Internal 20SC cannot be changed

from zero, but we found jumper locations on the controller that did indeed change the address with no apparent problems. The Finder even noted the change appropriately. (See screen shot above.)

All the units come with indicator lights that show disk access. Some light up when any SCSI device is in use, while others indicate only internal drive activity.

The noise from the Macintosh SE's built-in fan covered up most of the disk noise with all the units. The Conner drive used in the FI/40 and PRO40-SE/i was especially quiet.

Software: Utility programs

All drives are provided with utility software for formatting, but none of the other vendors has as polished a set of programs as Apple's HD SC Setup, Disk First Aid and Find File.

Peripheral Land includes no disk-test function, but it does offer the ability to partition the disk into separate volumes. If you do not need

MFS (flat-volume) support, this is not a big advantage. We encountered some bugs in the partitioning software but lost no data because of them. At press time, Peripheral Land reported the addition of password protection and auto mounting of volumes — two important enhancements — but we have not yet tested these features.

Peripheral Land's PL40i software also includes a driver-update function that makes it possible to install new versions of the software controlling the disk without reformatting it, but this utility does not indicate whether the installation was successful.

General Computer's Manager program is notable for being as easy to use as Apple's software and for adding the ability to change the drive's SCSI ID from a dialog box. Manager will not allow updating the hard disk's driver manually — or installing an older version of the driver — but when started it checks the driver and automatically updates an old or

damaged version.

The Mirror and Warp Nine utilities are missing a driver-update function, but they have unique access to low-level disk information, such as the defect list, which makes it possible to do some unusual manipulations with the help of one of their technical experts. The CMS utilities are complete and work smoothly. They can display extra information about disk fragmentation, SCSI bus status, and other items.

Backup

As a precaution against hard-disk crashes, all the drives except the Mirror and Warp Nine include some sort of backup program to save data — including files larger than 800 Kbytes — on floppy disks. These backup programs, while adequate, suffer when compared with better ones on the market from Personal Computer Peripherals Corp. of Tampa, Fla. (HFS Backup 2.0) and SuperMac Software of

HARDWARE FEATURES

Product	SCSI addressing	Shock mounts	Drive	Controller	Indicator lights
CMS PRO40-SE/i	0-6 via jumpers	No	Conner	Conner	Access (red)
Peripheral Land PL40i	0, fixed	No	Fujitsu	SMS/Omti	Access (green)
General Computer FI/40	0-6 via software	Yes	Conner	Conner	Access (green)
Mirror 450 SE	1-6 via	Yes	Fuji Electric	SMS/Omti (RLL)	Access (red)
Warp Nine P45i	pushbutton	Yes	Fuji Electric	SMS/Omti (RLL)	Access (red)
Rodime 450 RX	1-6 via	No	Rodime	Rodime	Access (red)
Apple Internal 20SC	pushbutton	No	Rodime (or MiniScribe)	Rodime/Apple	Access (red)

Mountain View, Calif. (DiskFit). Rodime's FileGuard, for example, changes the modification date of files that it restores. General Computer's Backup won't let you restore directly to any other manufacturer's hard drive. HD Backup, the Apple program also distributed with the Peripheral Land and CMS drives, lacks many features, such as the ability to make a backup set of documents only.

Spooling

General Computer and Mirror include versions of LaserSpeed, an excellent spooler from Think Technologies of Lexington, Mass., with their drives. Mirror also bundles the MaxPrint ImageWriter spooler (from MacMemory of San Jose, Calif.) under a different name, while General Computer supplies its own ImageWriter spooler. Spooling software is a bonus, not a necessity, and we have had trouble with both LaserWriter and ImageWriter spooling under Apple's new System 4.1 software. You may have to get updates for compatibility.

Performance

There was significant variation among the drives, as shown in the chart (this page) and perceived in use. Performance results should be considered in deciding on a drive, but they in the overall picture are certainly less important than reliability and support.

Apple's 20SC sets a surprisingly high standard of performance for a 20-Mbyte drive. The Mirror and Warp Nine are at the back of the pack, although their performance was reasonable, and the companies claim to be working on faster driver software.

The CMS PRO40-SE/i also lags behind the Apple drive a little. But the others sped ahead, leaving the 20SC exactly in the middle. Peripheral Land's PL40i tied SuperMac's DataFrame XP40 external drive for the fastest Macintosh drive we have ever tested, while the Rodime and General Computer drives were breathing close behind in second and third places.

Gltches

We encountered no major problems with any

of the disks tested, but several minor ones cropped up. The Warp Nine drive exhibited a strange wait period when Restart was selected from the Finder, but it started up normally if the power was turned off after selecting Shutdown. The Mirror drive experienced a few glitches until we reseated the cables on the connectors, and then it worked properly. We got one read/write error with the Peripheral Land drive when copying thousands of files, but it did not recur.

According to Apple's update notes, anyone using a hard disk with a capacity larger than 32 Mbytes must use System 4.1 software to avoid data corruption. In addition, Apple Internal 20SC owners should upgrade to HD SC Setup Version 1.4 or later to avoid possible problems. All drives tested were compatible with System 4.1.

Conclusions

Although it offers polished utilities and documentation along with good performance, Apple's Internal 20SC drive is simply not competitive with the other drives on a cost-per-megabyte basis. Apple offers half the capacity or less but charges much more than half the price. A short warranty also detracts from the 20SC's value. Given the alternatives available, it makes more sense to buy a Macintosh SE with two floppy drives than one with the built-in Apple hard disk.

The PL40i from Peripheral Land offers an attractive combination of low price per megabyte, outstanding performance and an external case and cable for your second floppy drive. What it lacks is sophistication in its utilities and documentation as well as the ability to change its SCSI ID number. The packaging, with the controller board on the side, is a little awkward but not a big problem.

The General Computer FI/40 offers just about everything except a low price. It has extensive utilities and very good performance in a quiet, compact, shock-mounted package.

The CMS PRO40-SE/i is similar to General Computer's product, using the same Conner

Continued on next page

Warp Nine P45i

Warp Nine Engineering ☆ ☆ ☆

1751 W. County Road B, Suite 107
St. Paul, Minn. 55113
(800) 654-5294/(612) 426-9769
\$999 (list price)

Formatted capacity: 47 Mbytes

Warranty: 90 days

Strengths: inexpensive; large capacity; toolkit and installation manual included; SCSI ID push button; shock-mounts; telephone support.
Weaknesses: slow; base price provides only short warranty and basic utility software.

Mirror 450 SE

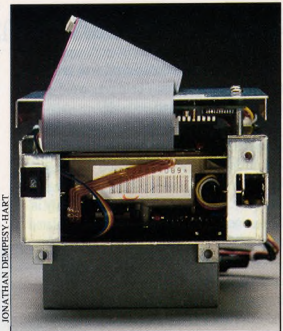
Mirror Technologies ☆ ☆ ☆

2209 Phelps Road
Hugo, Minn. 55038
(612) 426-3276
\$1,295 (list price)

Formatted capacity: 47 Mbytes

Warranty: 1 year

Strengths: inexpensive; large capacity; SCSI ID push button; shock-mounting, print-spooling included; telephone support.
Weaknesses: slower; no backup software.



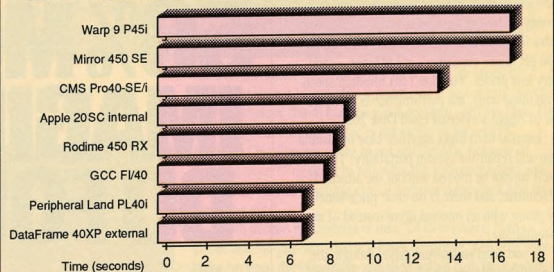
The Warp 9 drive looks like Mirror Technologies'.



Warp Nine is the only company to offer a toolkit and installation manual with its drive.

HARD-DISK PERFORMANCE

This graph charts read/write performance for different disks used with a Macintosh SE (1 Mbyte of RAM, cache turned off). Figures shown are times to duplicate a 766-Kbyte file in the Finder. The DataFrame XP40, the fastest external drive among many we've tested, is shown for comparison.



SOFTWARE FEATURES

Product	Backup Program?	Test Program?	Driver update program?	Comments on formatting utilities
CMS PRO40-SE/i	HD Backup 1.0	Yes	Yes	Displays extra details about disk & SCSI bus
Peripheral Land PL40i	HD Backup 1.0	No	Yes	Some limitations and bugs when partitioning
General Computer FI/40	Backup	Yes	Automatic only	"Manager" must run from floppy; encryption program included
Mirror 450 SE	None	Yes	No (not enabled)	"Edit" low-level disk information
Warp Nine P45i	(1) (2)	Yes	No (not enabled)	"Edit" low-level disk information
Rodime 450 RX	FileGuard	Yes	Yes	Test is separate application
Apple Internal 20SC	HD Backup 1.0	Yes	Yes	Disk First Aid does testing/recovery

1 Printspint (MaxPrint)/Fullback bundle: \$39.
2 LaserPrint (LaserSpeed)/Fullback bundle: \$79.95



Peripheral Land includes a case so the second floppy drive can still be used.

Peripheral Land PL40i

Peripheral Land Inc. ☆ ☆ ☆
47800 Westinghouse Drive
Fremont, Calif. 94538; (415) 657-2211
\$1,295 (list price)

Formatted capacity: 41 Mbytes

Warranty: 1 year

Strengths: very fast; floppy drive enclosure supplied; extra capacity; reasonable price; partitioning capability; telephone support.

Weaknesses: fixed SCSI ID; no extra software; minor bugs in utilities.

Going inside: Tips for installing a hard disk or other hardware

If you do install an internal hard disk or other hardware, these tips may help you avoid damaging the computer and yourself:

- The display tube (CRT) stores a dangerous electrical charge — even after it has been shut off for a day and even if you flick the power switch on after unplugging the computer. It should be discharged but only in the manner Apple specifies: with an insulated screwdriver and alligator clips to short from

the connection under the rubber cap on the tube to the *same screw* on the chassis where the CRT ground wire is connected.

- It is all too easy to break the CRT neck — causing an implosion — by bumping the attached circuit card with your hand. This is especially easy to do if you are trying to pull out the power cable from the logic board and forget that it has a latch built into its connector! Breaking the tube isn't just expensive — it's

dangerous. It's best to wear safety glasses when working inside the Macintosh.

- There are one or two screws that hold an internal hard disk to the floppy drive enclosure, and it is very easy to drop one into the floppy drive. The way to avoid this disaster is to use a screwdriver that is magnetic or has some other mechanism for holding onto the screw while it is inserted or removed.

- Be careful to avoid a static discharge into

the sensitive circuits of the Macintosh. Do not, for example, work on the Macintosh wearing leather shoes and standing on a rug. Anti-static work mats and wrist straps are available.

- Many stubborn problems turn out to be caused not by circuit boards or drives but by defective or improperly seated cables and connectors. Be careful about aligning connectors properly and about not pinching wires. ■ —

By Ric Ford

Continued from previous page

drive and controller. It lacks the FI/40's speed and extra utilities but provides solid basics at a lower price. If our experience is typical, CMS also provides good phone support.

Rodime has a reputation for producing reliable drives. Its 450 RX offers excellent performance and a full 43 Mbytes of capacity. The backup program could use some improvement and the price could be lower, but this is a solid drive that is likely to be popular among business users.

Finally, the bargains: Mirror's 450 SE and Warp Nine's P45i. According to the manufacturers, components used in the two drives sometimes come from different suppliers. Otherwise, these are identical drives sold at different prices to different markets.

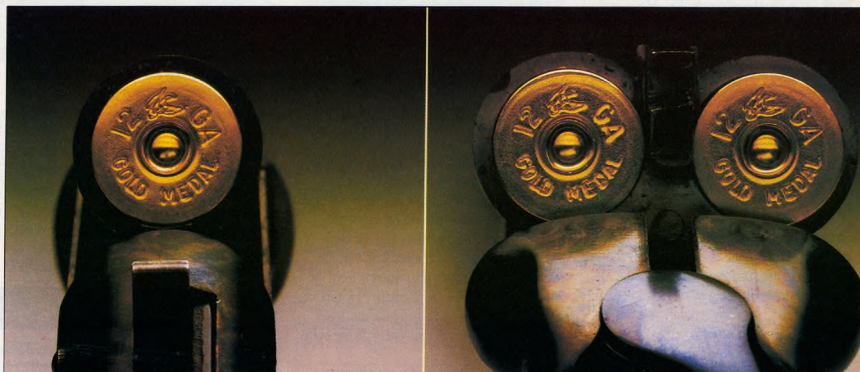
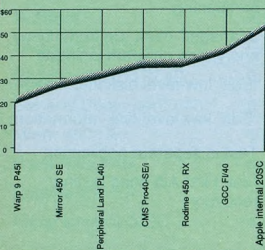
You have the option of buying the drive mail-order and installing it yourself to save money or buying through a dealer and getting extra software and local support. Either way, you get bonus capacity — 47 Mbytes — and very low prices. You don't get blinding speed with these units, but performance is comparable to Apple's external Hard Disk 20SC.

Internal hard disks sacrifice ease of installation and repair for system portability. The disk itself cannot be moved without the attached Macintosh, and there is no clear price benefit by going with an internal drive instead of an external one.

If you need an internal drive, though, the expandable Macintosh SE provides a much better platform than earlier Macs. Apple's stock 20-Mbyte drive is a good performer with solid utilities and documentation, but the third-party products reviewed here offer an attractive combination of twice the capacity and a much lower cost per megabyte. ■

HARD-DISK PRICE PER MEGABYTE

The following chart shows the price per megabyte of the different internal hard disks. The list price of the disk is divided by the capacity (number of megabytes) of the disk.



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Macs of many colors

David Siegel makes a computer reflect its owner's taste

BY PRISCILLA BURGESS

Special to MacWEEK

PALO ALTO, Calif. — What have you done for your Macintosh lately? Have you considered getting it stoned?

Now you can. Take it to David Siegel at Aesthetics Technology in Palo Alto, Calif., and he will make your computer look like a slab of granite or marble, or paint it any color under the sun.

The company, specializing in what Siegel calls "computer cosmetics," paints computers and some computer peripherals any color or finish the client desires. This can be faux granite, mahogany, marble, any Pantone color or (in development) metal-plating. If a customer wants to customize his Mac even further, it is possible to have an artist overlay solid-color finishes with pictures or abstract designs.

Siegel is an engaging 27-year-old who studied type and product design at Stanford University in Palo Alto, Calif., after getting an engineering degree from the University of Colorado. While working at Lucasfilm in Marin County, north of San Francisco, he gave his own Mac a granite finish. His friends admired the paint job so much that Siegel decided to launch a company to provide the option to others who might be sick and tired of looking at the same old gray computer day after day.

So far, Siegel has only worked on Macs. One reason is that Apple's Jean-Louis Gasse likes the idea enough to have provided Siegel with Mac shells for samples and experiments. The other reason is that the notion of decorating their computers seems to appeal to Mac owners more than owners of other types of equipment. Not one IBM PC has come in the door yet.

Siegel, who has startling blue eyes and a wide grin, cheerfully acknowledges the frivolity of his product. "My goal is to provide something that appeals to a person's desire," he says. "I'm offering an affordable and fun luxury item. Most consumer products come in a range of colors and styles. Why shouldn't people be able to choose a computer that matches their environment or their personality? Imagine how you would feel if you couldn't select special features and colors for your car."

The possibilities for decorating computers boggle the mind — and it certainly seems to be an idea whose time has come. Designer Doug Akagi, for example, refused to allow a Mac computer in the door of his studio until Siegel had painted it black so that it matched the carefully coordinated decor. Perhaps the next step will be computer accessories like fuzzy dice or sheepskin covers.

Turning a computer into stone takes more

than a glance from Medusa. Siegel begins by covering the Mac's finished surface with an epoxy spray so that the new paint will adhere properly. Only then can the case be painted or plated according to the client's wishes.

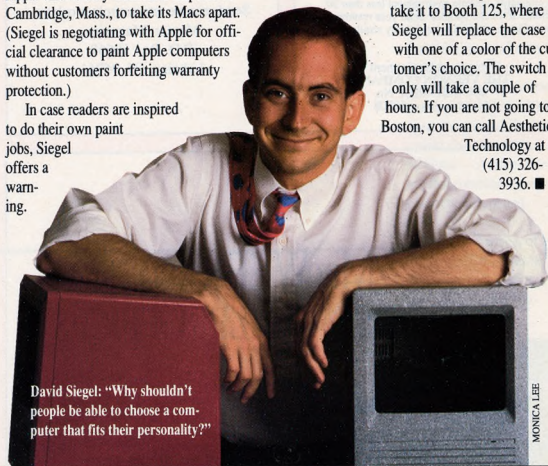
While the paint job itself runs from \$195 for basic black to \$895 for faux wood or marble, there are a few hidden costs — not the least of which is that painting the case voids the Mac's warranty. This is because Siegel has to remove the case in order to paint it, and Apple allows only General Computer of Cambridge, Mass., to take its Macs apart. (Siegel is negotiating with Apple for official clearance to paint Apple computers without customers forfeiting warranty protection.)

In case readers are inspired to do their own paint jobs, Siegel offers a warning.

"If you try to paint your computer without taking the case off, even with careful masking, it's almost impossible to keep paint from getting into drives or dripping into the keyboard," he says.

A more serious obstacle is the 12,000-volt capacitor connected to the Mac's CRT. "If you touch it," says Siegel, "you'll be knocked into next week."

Siegel will show his painted Macs at the Mac Expo in Boston Aug. 11-13. Anyone who wants his Mac painted can take it to Booth 125, where Siegel will replace the case with one of a color of the customer's choice. The switch only will take a couple of hours. If you are not going to Boston, you can call Aesthetics Technology at (415) 326-3936. ■



David Siegel: "Why shouldn't people be able to choose a computer that fits their personality?"

MONICA LEE

A day in the life of a veteran computer salesman

BY CLIFF LEHMAN

MacWEEK Staff

SAN FRANCISCO — "Computers are idiots. They're just a bunch of switches that only go on or off," says Ira Smith, flipping his hand back and forth like a toggle switch.

Smith taps in a command on the computer. Nothing happens — and his customer, a tall businesswoman, starts to fidget restlessly. Momentarily flustered, Smith quickly discovers his mistake with a drawling, "Ah ha!"

"Computers are supposed to make life easier," he tells his customer. "If they don't, it's usually a pilot error."

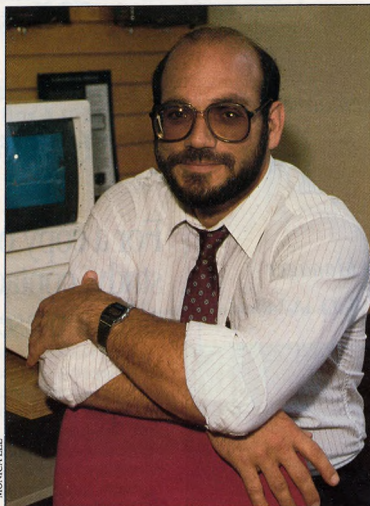
It is just a simple slip-up, but Smith knows how damaging such a slip can be at the point of sale. He also knows that anyone can make such a mistake and that handholding customers with "simple" problems is crucial. He often fields calls from people with problems ranging from a Mac that someone forgot to plug in to computers that are DOD (dead on delivery).

"I've gotten a lot of regular customers just by calming someone down and helping them solve their problem," Smith says. "They've bought something for a lot of money and it's not working. They're scared, upset and need help and assurance."

He says he helps people even if they didn't buy their computer from ComputerLand. "I'm not a philanthropist," Smith says, grinning. "I get something from it: It makes me feel good."

Smith, a 20-year veteran of retail sales, says 60 percent to 70 percent of his customers are business people. The business community is easier to deal with, he says, because it is more knowledgeable about what it needs and about computers.

Still, he has found it surprisingly difficult to get business people excited about the Mac — but it is getting easier. "A year ago Apple was selling something like one-seventh as many computers to business people as it is now," he says. "But a lot



Ira Smith: "Computers are supposed to make life easier."

more offices are interested in Macs now because of the desktop-publishing ... revolution." Smith puts a sarcastic emphasis on "revolution."

"We have two Macs and 20 DOS machines in our store," he says, "but probably 90 percent of our proposals and reports are

done on the Macs. The Mac is just more ..." (He raises his hands and shrugs.) "intuitive. It makes sense just sitting there."

Nonetheless, Smith has one giant problem with the Mac: His cut, he says, for selling a Mac is not as big as for a DOS machine. "But I'm not going to not sell the Mac because of that," he says. "I'm going to sell what the customer wants and needs. Hey, if I do anything else, it's gonna come back and bite me in the ass."

Smith divides his customers into "DOS-o-philes, Mac-o-philes and the guy who doesn't know anything. The only similarity between the Macintosh and IBM is that both have monitors and keyboards."

Getting someone to move out of the DOS environment and into the Mac environment has been hard until this year, Smith says, because the Mac looks like a toy. More importantly, until recently the software available for the Mac "wasn't that good."

Smith, who also is part-owner of a home-video store, says that just as in the video business, it is software, not hardware, that drives the industry. "If all those movies weren't available for people to play, who would buy a VCR?" he asks. "The real thing driving the new Macintosh market is the software."

But Smith's sales approach is tuned to finding out what buyers of both kinds of machines need, providing information to them about how to get a job done and giving them confidence in what they are buying.

"I don't sell computers. I sell trust. I've been selling for 20 years and I've never sold anything that's unique, so my approach is to sell trust," he says.

It's nearly two hours later when the tall businesswoman makes her departure. She still hasn't agreed to buy a computer — but Smith isn't worried about the sale. His eyes brighten and he smiles slyly as he thinks about one of his favorite pastimes: closing deals.

"I start closing from the time I start talking," he says. "Most successful salesmen do that. The machine is the same wherever you buy it. I have to sell me," he says, jabbing his chest with his finger. ■

MONICA LEE

PUBLICATIONS EDITOR/COPYWRITER

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GENERAL COMPUTER

Continued from Page 1

available. QuickDraw graphics subroutines are resident in ROM and are used for Macintosh graphics applications as an efficient way to describe an image for display on the screen.

A QuickDraw printer calls up the graphics routines and prints them, making the process faster and more efficient. By contrast, Apple's ImageWriter prints images as dots rather than understanding a drawing as an outline.

"One of the big advantages of a QuickDraw printer would be speeding up the printing process and skipping a step in describing an image to a page," says Rick Young, a senior analyst at Dataquest Inc. of San Jose, Calif. "With QuickDraw, you are passing the graphics routines directly from the Mac to the printer."

General Computer's Personal LaserPrinter includes Bitstream fonts (from Bitstream Inc. of Cambridge, Mass.) that are defined as outlines that can be scaled, rotated and manipulated without image or font degradation.

Similar to Adobe Systems' fonts on the Apple LaserWriter, the printer includes Palati-

no, Helvetica Narrow, Symbol and Courier fonts from Bitstream. Times and Helvetica fonts are available from a third party.

A toner cartridge, cleaning magazine and OPC drum are standard. An optional RAM cartridge is available for the Macintosh 512K Enhanced to allow that model to connect to the printer.

Despite their low cost and speed, QuickDraw printers such as General Computer's may present problems for some desktop publishers. Because QuickDraw computers are not PostScript-compatible, they cannot be used to preview copy that will be sent to typesetters such as the Linotronic.

Young says the limitations of QuickDraw printers are "no device independence; limited distributed printing; no compatibility with PC world; locked into Apple product line."

The Personal LaserPrinter is based on a Ricoh engine.

General Computer is located at 215 First Street, Cambridge, Mass. 02142; (617) 492-5900. ■

COMTREX

Continued from Page 1

uct manager. "The Macnifier was it."

Filling out the trio of products is a video-imaging system that produces halftones and color separations for less than \$2,000 and a 20.7-inch monochrome monitor priced less than \$1,500.

The video-imaging system, called Imagizer, produces halftones on a LaserWriter printer or a Linotronic typesetter, according to Comtex. The output also can be imported directly into popular desktop-publishing programs such as Aldus' PageMaker 2.0.

Plugging into a video outlet inside the Macintosh, the Macnifier sits on an overhead projector like a transparency. Images on the Mac screen can be projected with a sharp green image.

Compatible with all Macintosh models, the Macnifier adjusts automatically for the different scan rates. Its resolution equals the Macintosh screen with which it is being used.

Macnifier weighs 4 pounds and fits in a briefcase. It is available with two interfaces: one for the Mac II, the other for all other Mac models. For \$193 users get both, Baker says.

The Macnifier is similar to a highly successful product for the IBM PC world by Sayette Technologies of Rochester, N.Y. Users of the Macnifier can buy a \$495 overhead projector, called the Illuminator, which folds to briefcase size to fit under an airplane seat.

The Imagizer consists of a camera attached to a modern-size digitizer that codes images into PostScript and software that can be used to alter contrast and brightness of the image.

To produce halftones with Comtex's Imagizer imaging system, a user sets up the Imagizer's video camera on a tripod, specifies two to 256 gray levels, takes the picture and adjusts it with the software.

Currently, the Imagizer shows only artwork and stationary 3-D objects, but when the company is finished with an interface for a Canon

still-video camera, users will be able to forget about conventional photography and dark-rooms altogether, Baker says.

The interface with Canon's Still Video System will be ready this fall, perhaps even by the time of the Mac Expo, Baker says. Full editing of images will come with the introduction of Letraset USA's new gray-scale, image-editing software, code-named the Realist, Baker says.

Using a LaserWriter, the Imagizer produces halftones with a 60-line screen — about the quality of a newspaper photograph. On a Linotronic 300, the screen goes up to 133 lines — almost the quality of magazine photographs.

Any standard video camera or VCR signal can be used for input, but Comtex's camera has a resolution of 750 lines, compared with the home video 250-line standard.

The monochrome version of the Imagizer is available for \$1,295 or with a camera, \$1,995; a stand for shooting flat art and lights boosts the price to \$2,495.

The Imagizer can output on transparencies in the four colors used for printing: yellow, magenta, cyan and black, Baker says. Color cartridges for the LaserWriter, being developed by Comtex with Thompson & Thompson of El Toro, Calif., will allow users to output the color transparencies to libraries ready for the printer. The accessories for a color system, including filters, sell for an additional \$495.

Comtex also plans to introduce at the expo a \$1,495 20.7-inch monochrome screen — 12.8 inches by 18 inches — capable of displaying two pages of text simultaneously. The monitor is being developed with Thomson International of Culver City, Calif., Baker says.

A privately owned company with about 100 employees, Comtex was founded in 1984. Its business has been primarily in contract and OEM engineering.

Comtex Ltd. can be reached at P.O. Box 5500, Newport Beach, Calif. 92662; (714) 855-6600. ■

DBASE

Continued from Page 1

years, release of the \$495 program was originally scheduled for late last year, according to Ashton-Tate.

Why has it taken so long to deliver dBASE Mac?

"Although the [software] code that makes up dBASE Mac has been stable for some time, Ashton-Tate held up the release of the program until it could be made to run faster," says Adam Green, a dBASE author and lecturer in Lexington, Mass., who has tested prerelease copies of the program.

An Ashton-Tate source closely associated with the development of the program but who asked not to be named says that "Dottie" (the code name given to dBASE Mac) had been delayed in an effort to better its performance.

An Ashton-Tate spokeswoman declined to comment on reports of the delays but said dBASE Mac is expected to begin shipping by Aug. 1 and it will be demonstrated at the Mac Expo in Boston in early August.

Ashton-Tate's delays in shipping dBASE Mac could hurt its sales, says Green. Corporate Mac users who have also evaluated prerelease copies of the program say they agree.

Some corporate users who once anxiously awaited commercial availability of dBASE Mac are now evaluating copies of ACIUS Inc.'s 4th Dimension, a relational database with features comparable to those of dBASE Mac, says Jay Weiss, a microcomputer consultant for a New England insurance company.

Because 4th Dimension was developed by former Apple employees and is easier to use, it's possible ACIUS' program — which, like dBASE Mac, includes graphics capabilities and a programming language — could have a greater chance for commercial success in the corporate market, Weiss says.

But Ashton-Tate developers say it's far too early to declare a winner and that dBASE Mac is just the first hit in a one-two punch. The second hit, sources say, could come later this year with the release of Glass — Ashton-Tate's integrated Mac program that combines financial modeling tools, a word processor and desktop-publishing tools.

Designed to be linked to a component of dBASE Mac called FM Server, Glass will be able to share dBASE Mac files and is being developed by MacWrite author Randy Wingington's company, Encore Systems. ■

APPLE

Continued from Page 1

dot-matrix printer designed for business applications. The printer will not include PostScript, the leading page-description language for desktop publishing.

• PC AppleShare software that allows IBM PCs with AppleTalk adapter cards to connect to AppleShare as equal members of the network;

• MultiFinder, code-named Juggler, Apple's initial attempt at multitasking software that allows a user to run more than one application simultaneously;

• HyperCard, designed to allow the average user to develop simple applications like calendars, itineraries and to-do lists.

In addition, Apple may introduce a 9,600-baud Faxmodem and scanner that allows the user to transmit bit-mapped images over phone lines. As previously reported, Apple is preparing MacWorkStation, a software toolbox that will allow programmers to give the Macintosh "look" to programs running on mainframes.

Apple also will announce new versions of four of its mainstay programs at the exposition, including MacDraw 1.95, MacWrite 4.6, MacProject 1.2 and MacTerminal 2.2.

Marc Canter, president of MacroMind in Chicago, says he will be surprised if Apple can get that many products perfected in time for the sold-out Mac Expo.

"We're sitting here beta-testing Juggler and Hypercard," says Canter. "It just seems to me they have a lot to do. I don't see how they can get it together in the next three weeks."

Juggler is a code name for MultiFinder, a promising piece of system software that probably will not be a cure-all for productivity problems. According to beta testers and developers who use the program, MultiFinder

does not provide true multitasking.

"This version of Juggler will not protect the memory or devices, which is an important issue, and it does not control the resources of the machine," says one developer.

Apple's much-anticipated new dot-matrix printer is approximately 18 inches wide, with an optional multi-bin sheet feeder.

The printer operates at a resolution of 216 by 216 dpi. It is expected to retail for less than \$1,000. "This is a good way for Apple to get closer to letter quality for users who can't afford a LaserWriter," says analyst Scott Puopolo of Dataquest in Boston.

PC AppleShare, which will compete against a comparable product from Tangent Technologies of Norcross, Ga., will be exhibited at Apple's Communications and Networking Conference, running concurrently with the expo. The product further integrates PCs into Apple's own network.

Apple hopes to improve on traditional facsimile technology by providing a high-resolution scanner. The scanner replaces a Fax machine that digitizes original images dot for dot. Unlike a Fax machine, the Apple Faxmodem allows the user to transmit graphics over a telephone line at 9,600 baud using Group 3 compression protocols.

Apple sources say the product plays catch up with similar products available for the PC. The Apple Faxmodem will send a document directly into another similarly equipped Mac, where it will be saved as a MacPaint or MacWrite file.

Two sources close to Apple say the Faxmodem will sell for about \$700 without a scanner. The release of the Faxmodem may depend upon development of the scanner, which probably won't be ready by the time Mac Expo is held. ■

MAC THE KNIFE

Dim lights, thick smoke, loud, loud music ... The Knife isn't sure about the smoke, but when Think Technologies moved last month to its new offices in Belmont, Mass., it set out to create the ultimate environment for its top programmers. There's a huge central room with video games, Foosball and all the junk food any hacker could ask for. Then there's an inner sanctum, where a trio of coders work in virtual darkness with the rock 'n' roll really cranked

up. The company claims the sound insulation in the black-walled room is so thick that the building's foundation would crack before anyone would hear the music outside the sanctum.

So what's new? Only that Think just laid off some of those same programmers. Could be the company is trimming down for a coming acquisition by a major player who covets Think's line of programming languages. Prime suspects are Microsoft and Claris.

Microsoft is also known to be lustfully eyeing Forethought, but the question is, are they

after FileMaker Plus or PowerPoint?

Mac had been expecting to see Steve Jobs' scholar's workstation this fall, but it now appears the name NeXT may refer to the year, as in 1988. The delay seems to be over the design of the graphical user interface. (You remember Jobs' "brain damaged" assessment of X-Windows, right?) In any event, you might want to save up your Hanukkah gelt, Em, since the machine will come in at a surprisingly low price of about \$3,000.

This week in the Ann Arbor Softworks department: Word is that the only remaining

FullWrite bugs are related to Juggler compatibility. The Knife hopes the development people get it worked out quickly, since the marketing people are now saying the program will be released for next month's Mac Expo.

With FullWrite on its way, can WordPerfect be far behind? Would-be WordPerfect beta testers have only had their faith to sustain them 'til now, but patience has its rewards. They may be receiving their copies as you read this. Will it ship this fall?

Sound or fury?

Emily, did you ever wonder why the Apple IIGS has a better sound chip than the Mac II? Did you notice that the chip is socketed on the II? Don't you wonder why the sound chip isn't documented? Strange, isn't it? It's enough to convince you that the Mac II has a sound future.

Wherefore Claris? One software exec supposes that Claris is just a dumping ground for those who lost out in the quiet but fierce power struggle that was going on within Apple. Normally, the losers get booted out publicly (don't they, Steve?), but it wouldn't do to have the golden Apple image spoiled with reports of another power struggle.

System 4.1 incompatibility watch: The latest in a growing list of programs that won't run with the current system is Apple's own HD20 diagnostic program. (Nice going, Apple.) The fix is to boot from a floppy with an older version of the system.

Hope you aren't too attached to Finder 5.5, Emily. 6.0 is just around the corner and you'll love the little extras ... like a thermometer that shows the progress of a disk copy. Never use system software that ends in zero, you say? Be brave.

Upstairs, downstairs

Version 0.98 of Servant will be out in a week or two, with yet another version already in the works that will adhere to the Juggler standard. Pretty soon there'll even be documentation that you can download from CompuServe.

And that may be just about it for Servant. It'll never be a commercial product, and there may never be another version. Master Andy is rumored to be sick of programming the Mac. Too much of a good thing?

Boston central: As you discovered last week, Apple will show its newest AppleShare at the expo. Apple's not saying much, but one insider says they're doing some pretty nifty stuff in the PC-to-Mac connection department. You knew it was coming when Apple released the PC AppleTalk card with AppleShare, but I'm telling you when.

What you won't see at Boston is Malibu ... no, not the beach, not the Chevy, but the portable Mac. The Knife has heard Apple employees asking around for the best PC portable to take back East with them. Seems a little late to be doing market research, doesn't it, Emily? You can take it to the beach, but it won't do WildThings.

If you've got the hot chocolate, the Knife's got the mug. Contact Mac at (415) 882-7370 or on MCI (MacTheKnife). The only thing you have to fear is fear itself. ■

The Desktop Publishing Conference

A Seybold Seminar and Exposition

"The event of the year ..."

You heard about last year's Seybold Conference. More than 100 new products were introduced, including Ventura Publisher and Aldus PC PageMaker. Steve Jobs declared that Hewlett-Packard was "brain damaged" for selecting the DDL page description language. IBM revealed its desktop publishing strategy. Users blasted vendors for not offering support. Everyone agreed they had not seen so much enthusiasm and excitement in years.

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